# THE YOUTH'S COMPANION

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ONE YEAR $2.50

*A Weekly Illustrated Magazine For All The Family*

DECEMBER 20, 1923
VOLUME 97, NO. 51


MISFORTUNE IS NOT ALWAYS BAD FORTUNE··CALAMITY·RIGHTLY FACED AND BRAVELY BORNE·HAS OFTEN PROVED TO BE THE SOURCE OF SPIRITUAL STRENGTH AND ABIDING HAPPINESS··PROSPERITY IS NOT A REWARD·IT IS A TRIAL·A TEST OF CHARACTER THAT HAS SLAIN MORE SOULS· PERHAPS·THAN ADVERSITY··IN THE END IT IS NEITHER PROSPERITY NOR ADVERSITY THAT COUNTS··THE WAY IN WHICH WE MEET WHAT LIFE OFFERS US IS ALL··*H. S. C.*

## NEXT WEEK AND JUST AHEAD

### DECEMBER 27

**A REPUTATION**
***By Adelaide Hanlein***
A charming story of a tired young teacher and her good fortune

**PHILOHELA**
***By Samuel Scoville, Jr.***
A delightful anecdotal paper on the woodcock

**THE WEAK SPOT**
***By James S. Eldredge***
A thrilling tale of a new aeroplane

### JANUARY 3

Comes the New Year's Number with a Milestone Cover. On it William D. Eaton pictures the pioneer's first view of Iowa.

**PUTTING YOURSELF IN HIS PLACE**
***By Dr. Samuel S. Drury***
A delightful essay on courtesy

**THE SOAPSTONE STOVE**
***By E. E. Stanford***
The hilarious story of an odd millionaire


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PERRY MASON COMPANY
The Youth's Companion
*Publication Office*
Rumford Building, Ferry St., CONCORD, N. H.
*Subscription, Editorial and Business Offices*
881 Commonwealth Avenue, Boston, Mass.


## ACIDOSIS

THE blood and the tissues of the body are normally alkaline in reaction, and at no time is the blood ever acid; therefore the term acidosis, which indicates that the reaction of the body is acid, is not strictly correct. What is meant is that there is an acid tendency: the blood becomes neutral in reaction, and the excretions, such as the saliva and the perspiration, are acid.

Acidosis occurs in various conditions such as diabetes, Bright's disease, low fevers, blood poisoning, summer complaint of children, cholera, influenza and ordinary colds or catarrh, discharging abscesses, indigestion, starvation, various nervous diseases, worry and overwork, insanity, tuberculosis, cancer—in fact anything that causes a marked depression of the physical forces. It is also common after the administration of ether or chloroform for surgical operations. Acidosis that occurs as a complication or late symptom of diabetes is aggravated by the eating of fats. Whether acidosis is made worse by eating fats when it occurs with other diseases than diabetes is not absolutely determined, but it is just as well to eat less butter and cream whenever acidosis is present, even with ordinary colds.

The most striking symptom of severe acidosis is "air hunger" as manifested by deep and labored breathing. Another symptom, as has been suggested, is acidity of the saliva and of the perspiration; moreover, the breath has a peculiar sweetish, aromatic odor owing to the presence of acetone, which is one of the chemical substances formed during the incomplete digestion of fats. A symptom of very severe acidosis, especially when it is one of the complications of diabetes, is coma; that means death unless immediate relief is given. In such cases bicarbonate of soda is given in large doses by injecting it under the skin and into the veins, and with it is given a solution of glucose. Insulin will also relieve the coma.

In the treatment of mild cases of acidosis the greatest reliance is placed upon diet; meats and fats are largely reduced, and the principal consumption is of vegetables and fruits. Small repeated doses of bicarbonate of soda and salts of the other alkalies—potassium, calcium and magnesium—should be given. The soda will be more palatable if a squeeze of lemon is added to it.

## STOLEN

BARBARA opened the letter without premonition. It held four typewritten lines and was unsigned:

*"I shot an idea into the air.*
*It fell to earth I know not where.*
*But the credit I found from beginning to end*
*Was always claimed by Barbara Trend."*

Barbara read the lines blankly. What in the world did they mean? A second reading made her cheeks burn. It was contemptible, outrageous! And to send the thing anonymously! The next moment she was tearing across the campus and up to Cynthia Bradley's room.

"Read that!" she ordered, thrusting the paper under Cynthia's eyes.

Cynthia read it. "It was a cowardly thing to do," she said quietly.

"Cowardly! I should think it was! It's beneath notice. I should have torn the thing up and flung it into the wastebasket! Why, I hadn't supposed I had an enemy in the world who would think a lie like that, much less send it to me anonymously!"

Something in Cynthia's silence annoyed her. "Why don't you say something?" she cried.

"I have. I said it was cowardly."

"But you haven't said it was a lie."

Cynthia's eyes met Barbara's. "Is it a lie, dear?" she asked.

Barbara stared at her, speechless.

"I've got to tell you the truth," Cynthia said with a quiver in her voice. "I've known for a long time that I ought to, but I was too much of a coward. When you showed me that paper I'd have been as much of a coward as the writer if I hadn't! You have so many gifts, Barbara! You don't need to—rob others."

Barbara had grown white. "Go on," she ordered briefly.

"Think it out, dear. You won't need anyone, once you see. Take the entertainment last month. Your skit was delicious, but didn't Amy Marshal suggest the idea?"

"Amy Marshal couldn't have written it in a thousand years!"

"I know, but she ought to have had credit for the idea, which was honestly hers. It wouldn't have robbed you of glory. Dear, you don't know how you would have gained in everybody's love and admiration by acknowledging it! Take the matter of the class song; Zelma Fraser really suggested the refrain, didn't she? And the group plan that you've carried out so splendidly; why, it was shy little Mollie Crewe who thought of it in the first place, not you. Oh, my dear, do forgive me! If you knew how hard it has been to say!"

For a moment Barbara was silent; her lips were set hard. Finally she spoke: "I can't forgive somebody. I—I think it must be—myself."

## DO YOU CHEW SEEDS?

THE journey to Tambov was long, writes Mr. Maurice Baring in the Puppet Show of Memory; in my carriage a railway official drank tea, ate apples and sighed over the political condition of the country. Everything was as bad as bad could be.

"It is a sad business," he said, "living in Russia now." Then after some reflection he added: "But perhaps in other countries—in England, for instance—people sometimes find fault with the government?"

I told him they did little else.

He took a large roll out of a basket, and after he had munched it for some time he said, "After all there is no country in the world where such good bread can be got as this." The thought seemed to console him greatly.

The sunflower season had arrived. Sunflowers used to be grown in great quantities in Russia for the oil that is in the seed. The seeds also formed an article of food. You bite the seed, spit out the husk and swallow the white kernel. Considerable skill is needed to crack the husk and still leave the kernel intact. Chewing the seeds was universal among the lower classes. It is a pleasant adjunct to contemplation; it is also conducive to untidiness. Nothing is so untidy as a room or a platform littered with the husks of sunflower seeds.

When I was on the steamer at Tzaritsin one of the Cossacks approached me and said, "Do you chew seeds?"

At first I was at a loss to think what he meant, but I soon remembered the sunflower, and when I said yes he produced a great handful of dried seeds and offered them to me.

## LEAVING OLD AGE BEHIND

PRESIDENT-EMERITUS Charles W. Eliot, who is now in his ninetieth year, declares that as the years go on he is apparently growing younger, and to prove his point he tells the following story:

When he was elected president of Harvard he was a young man in his thirties. During his first year in office while he was strolling through Harvard Square one evening he passed a group of freshmen and overheard one of them say, "There goes old Eliot himself."

One night half a century later, on returning to Cambridge from the Boston symphony concert, he heard a senior behind him on the subway train say to his companion, "I wonder what's keeping Charley up so late tonight?"

## GETTING HIS WOOD CHEAP

IS there a parable concealed in this apparently humorous story in the Argonaut? Some social philosophers would say so.

A traveler on the desert came upon a lone stock raiser on the lower Colorado River. The chief object of interest on the barren ranch was a giant heap of firewood, and curiosity caused the visitor to ask the stockman how in the world he happened to possess it.

"Wal," the man drawled, "last year this here brush came piling down the river at flood time, and so I jest rounded up a bunch of Indians and told them they could have half of all they drug ashore. Golly, them Indians worked!"

## THE SUPERMAN

PRIVATE BANKS had been the most bashful and retiring little man in the army. When women visited the camp he had always fled for shelter and stayed out of sight until after they had gone. So it came as a surprise when one of his former companions ran across him in civilian garb and accompanied by a large, robust girl, whom he introduced as Mrs. Banks.

When he was able to get Banks aside he asked him how he had met his wife.

"Well," replied the little man meekly, "it was this way: I never did exactly meet her. She just kind of overtook me."

VOLUME 97 NO. 51 DECEMBER 20, 1923

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PUBLISHED EVERY THURSDAY IN THE YEAR



YEARLY SUBSCRIPTION $2.50 TEN CENTS A COPY

# CHARLIE

By

## Marjorie Hill Allee

YOUNG Dr. Ruth Alston consulted her wrist-watch again and sighed. Whether she looked back over the sand dunes in their early spring haze of green or down across Lake Michigan scuffed into little white-caps, she had a pleasant view; but she had not expected to devote her whole Saturday morning at Camp Medico to admiring the scenery.

"I'd have had time to stop in at Mrs. Novak's and see the new baby," she said to herself. "There, I do believe the girls are coming at last."

She sent a long *ya-hoo-oo* down the trail and, listening, heard an answering call not far distant.

"Janet! Anna! Whatever made you so late? Where's Emily?"

"Emily? Oh, she's back a dune or two with Charlie."

"Who's Charlie? I don't see why Emily wanted to bring a man."

Janet and Anna smiled at each other in a peculiar way. "I wouldn't say she wanted to bring Charlie, but she thought it was her duty," said Janet.

"Duty?" Dr. Ruth was disgusted. "Is Emily reforming him?"

"Wait till you see Charlie," Janet advised her.

She unslung her knapsack and blanket roll beside the cottage and, taking off her hat, turned to face the lake and the cooling wind. Anna produced a cluster of keys and unlocked the doors. "Poor thing! You couldn't even get into the camp," she said sympathetically to Dr. Ruth.

"You never have been late before," was the reply. "I didn't think it was worth while to hunt up my keys."

"Blame it on Charlie," said Janet. "Wasn't it Charlie's fault, Anna?"

"It certainly was," Anna replied emphatically. "They're coming now, aren't they?"

Down the slanting path of loose sand they could see Emily, tall handsome Emily, in short skirt, high shoes and plain shirt, slowly towing an incongruous little figure in a floppy hat and a taffeta frock that on closer inspection proved to be much the worse for wear. Under the wide brim of the hat bright interested eyes looked out on surroundings that their owner seemed to find most astonishing.

Arrived at the camp steps, the stranger carelessly dropped an armload of wilting wild flowers and proceeded to empty the sand from her high-heeled slippers. "I reckon that's the fo'ty-millionth time I've done that this mo'ning," she announced in a cheerful Southern drawl. "Wouldn't you reckon so, Emily? Don't you-all have anything but sand here?"

"And flowers," said Emily pointedly.

"The flowers were sweet," her companion agreed. "They just about saved my life, and I'm glad I did pick them, even if you didn't approve."

Janet forestalled Emily's reply. "Ruth," she said, "this is Miss Carroll, one of the freshmen whom I think that you have never met. You know that we're taking turns initiating them into camp life."

Dr. Ruth nodded. "What's to be your specialty, Miss Carroll?" she asked.

"Babies," Miss Carroll replied promptly and enthusiastically. "I mean pediatrics," she corrected herself. "There was the cunningest dumplin' of a baby back in the woods aways, living out heah in this awful wild place! What did you say its name was, Emily?"

Emily had vanished indoors. "It must have been Mrs. Novak's little girl," Ruth answered for her. "She's an old friend of ours, and she's particularly fond of Emily, because Emily took care of her once when she was sick."

The girl rose stiffly to her feet. "Emily wasn't right communicative. I reckon if I put these flowers in water, maybe she won't be quite so mad at me for picking them. Where do you-all keep your vases?"

"Vases?" Ruth laughed. "Emily was right; we usually let the flowers stay on their own roots. But perhaps we can find something that will hold water."

She found a can and a tumbler, and while the younger girl's deft fingers arranged the best of the flowers Dr. Ruth ventured a question that had puzzled her: "Where is Charlie? Did you leave him along the road? Janet said he made you late this morning."

The four girls looked at one another and then burst into irresistible laughter. It was the freshmen that recovered first.

"I'll confess. I'm Charlie, Dr. Alston. Don't you know that's the way they name girls down in my part of the South? It isn't even short for Charlotte; it's just Charlie. There are four or five Willies around home and a Patsy or two. And I guess I did make the girls miss the train. I just couldn't run in this tight skirt."

"And your heels are too high," Janet said frankly. "Take this pair of old tennis shoes to wear while you're out here."

Charlie speculatively regarded her slender silk-stockinged feet in the dingy tennis shoes, which were three sizes too big, but whether she liked them or not she said nothing. "You-all told me to wea' things that wouldn't get spoiled," she said defensively, "and I put on the same old things I'd wea' to a picnic at home."

"Never mind," said Dr. Ruth. "What shall we do this morning, girls? It's a little late for the trip to the swamp."

"Oh, no!" Janet protested. "We'll start straight off and eat lunch and supper on the way there and back."

"Let's go," Anna seconded her.

The air was fresh and invigorating, and every turn of the trail was lovely. After a week of hard study the girls were keen for the freedom of the country, but even so it was apparent almost from the first that the trip was not to be successful. The older girls, who were thoroughly experienced in walking and climbing, started off at a rate that carried them well over the ground without tiring them, but that left Charlie panting in the rear.

She did not know how to walk through bushes without stumbling or getting her skirt caught; she had no judgment as to the best footing in the sand. The pace of the party slowed down until with relief they decided to stop and have lunch.

"How do you cook?" Charlie asked. "At home they say I'm a right good cook."

"You build a little fire like this," said Janet, breaking small twigs and piling them in the middle of a carefully cleared space. "Then you light it on the windward side. Too much wind today! Then you cut green forked sticks like these for roasting the 'wienies' and a stronger one for the tea bucket."

"Well, I have my doubts." Charlie sighed humbly. "I nevah fried meat that way! I'll buttah the bread."

"Watch out for that fire, Janet," said Ruth; "it's blown over in those leaves. I don't want a forest fire on our hands today; the wind's too strong."

A neatly thrown double handful of sand from Anna put out the little flame.

"That's the way you do it!" Charlie exclaimed. "Mo' sand! Sand to look at and sand to put out fires—and sand in the sandwiches! Is the' anybody can buttah these buns without getting sand blown in them? I can't."

Somewhat impatiently Emily took over the task from her and, curling herself round her work, defied the tricky, shifting breeze.

"Tell me honestly, do you-all really like this place?" Charlie asked.

"Why, we love it," Janet answered.

"Well, it's a change from school," Charlie said with resignation. "I nevah in the world would go to medical school if I didn't have to, but they won't let me doctah babies unless I do."

"She's hopeless," Janet muttered aside to Ruth. "Anyone who doesn't like the sand dunes!"

"She hasn't given up yet. I give her credit for that," said Ruth.

But through the tedious afternoon Ruth did not know whether to be sorrier for Charlie or for the rest of them. Charlie had not worn heelless shoes since she was a baby, she declared, and her feet hurt so that she was obliged to stop every few minutes. She did not complain, although she made amiably scornful remarks about the dune country. Plainly, however, she had no endurance.

Yet they could not leave her by herself to follow the trail at her own pace while they ranged on side excursions to favorite ponds and flower banks; left to herself, she lost the trail.

"I think," said Emily with restraint, "we might as well go back."

"But we've not come more than three miles," Janet protested.

Dr. Ruth as usual took matters into her own capable hands.

"Janet, why don't you and Anna take some supper and walk on to the swamp? Emily and I will travel back with Charlie as slowly as we please."

"Or slower," commented Emily under her breath; but she was not out of humor many minutes. So long as she was with Dr. Ruth, whom she adored, she did not greatly mind Charlie's plea that they sit down to let her feet catch up with the rest of her.

By six o'clock they had reached a place

*"I reckon that's the fo'ty-millionth time I've done that this mo'ning," she announced*

not far from the camp, though still some distance inland.

"Let's have supper here," Dr. Ruth proposed. "This valley is as sheltered from the wind as any we'll find, and we can get water from Mrs. Novak's well. Emily, why don't you invite Egerton up to supper? That's the baby's brother, Charlie; did you see him this morning? The Novak's little shack is just beyond this dune."

"I'd love to see the baby," said Charlie regretfully, "but I guess I'll stop right here. How many miles have I walked today?"

"Oh, maybe seven," Ruth guessed abstractedly, busy with her fire.

"Seven!" Charlie exclaimed in an awed tone. "I surely will remember that. When I'm an old, old lady I'll tell my little grandchillen about the day I walked seven miles!" She lay back in a drift of brown oak leaves. "I'd offer to help," she said wistfully, "but I'd just get in the way, wouldn't I?"

Ruth could hardly contradict her. Presently Emily was back to help, bringing with her a shy dark-eyed little boy who looked with worshipful eyes at the girls, and whose appetite was almost as good as Charlie's. Charlie could not remember when she had been so hungry before.

When the last orange was finished she went promptly to sleep in the midst of her oak leaves. Ruth's hand on her shoulder only half-awakened her.

"Charlie! Wake up and listen. Emily and the boy and I are going to climb to the top of the Big Dune. Stay right here till we come back, will you? Don't try to go home."

Charlie mumbled a sleepy assent. Of course she would stay right where she was; nothing could induce her to move her weary body. But it was cool as the daylight faded, and her clothes were thin. The fire was only a handful of coals; she saw near at hand a pile of dead branches from which Ruth had taken the wood for the supper fire, and she threw them over the coals in an awkward sprawling heap. When they blazed up and she felt the heat of the fire again she dropped off to sleep.

How long she slept she could not tell, but she awoke with a vague sense that something was wrong. She sat up blinking in the dusk. What was that odor? Suddenly her eyes opened wide, and she jumped up in such haste that her stiff muscles rebelled. Across the dry oak leaves an irregular line of flame was advancing; the wind puffed at it, and it leaped higher and made a torch of a dead blueberry bush.

Charlie backed away and watched it, fascinated. It occurred to her to throw a little sand in the direction of it, but her aim was poor, and she was afraid to get closer to the flame. She wondered how far the girls had gone and called shrilly for them, but got no answer.

"Well, I know one thing," said Charlie to herself. "This is no place for a tenderfoot."

She set out in the direction in which she imagined Lake Michigan to lie and was pleased that the fire was traveling in the opposite direction. At the top of the first dune she paused to gain breath and look back.

The fire was creeping up the hillside opposite, bright against the night. She must find the lake as soon as possible; there she should be safe, no matter where the fire spread. But where was the lake? She had become confused. Turning to view her whole horizon, she saw a light that was not her fire.

*Without warning . . . the sapling careened toward her*

DRAWINGS BY JOHN GOSS

"Oh!" she breathed. "That's where that darling baby lives! Oh-oh!"

The whole picture in her mind shifted. She saw, not herself caught by the unmanageable fire, but the placid dark-haired baby, helpless and in danger in its little shack of wood and tar paper.

Not for an instant did Charlie hesitate. Where she had climbed painfully up she slipped and slid down quite as painfully. Her skirt caught, and she tore off the whole wide hem and found to her relief that she could move much easier. What she should do to fight the fire she had not the least notion, but she intended to fight it.

It was traveling uphill steadily over a space about twenty feet wide, and the wind was rapidly spreading it. Charlie climbed after it. The face of the dune was steep, and it was hard to find secure footing. A mass of loose sand gave way under her foot and slid down with a rush, extinguishing the little edge of flame left along the path of the fire.

The circumstance seemed a good omen; one thing at least she had not done wrong! She climbed more doggedly until she was ahead of the fire. On one matter she was determined: the fire must not reach the top of the dune and feel the full force of the wind; if it did, it would in only a few minutes be down in the next valley, threatening the home of the Novak baby.

Across the face of the dune Charlie began scratching up sand feverishly with her hands. Her eyes were full of smoke, and the sand was not so loose as she had supposed but was interwoven with the roots of little plants; nevertheless she dug through them. As far as it went her trench was successful, but the barrier of moist sand extended only half far enough when the fire reached it.

Desperately Charlie scrambled to the top of the dune. There was no good place to stand, but she held with one hand to a convenient sapling and kicked and threw sand furiously. Without warning something loosened; the sapling careened toward her, and with it came a large part of the bank in which it grew. Charlie felt herself descending straight toward the fire, and all her efforts to escape only hurried the small avalanche.

Nothing could have been more effective as a fire extinguisher than the mass of sand on which she tumbled downhill. It spread widely, but its force was not spent until it had carried her to the site of the campfire that had caused the mischief. When she had wiped her face sufficiently free of sand to look round her there were only a few glowing ashes far up the hill to show for the racing fire of a moment before. Charlie took no risks; she carefully buried those ashes before she permitted herself to rest in the darkness.

Half an hour later she saw the gleam of a flashlight through the trees, and the murmur of voices told her that Ruth and Emily had found the other two girls. She heard clearly Emily's plaintive remark, "I do hope she hasn't lost herself again. Wasn't our fire close here? I smell it."

"I'm not lost," Charlie assured her in a small, cheerful voice. "And that's my own fiah you smell, Emily, my own private forest fiah! One thing about a forest fiah," she added, "you do have to stay right with it. Right on top of it in my expe'ience!"

"A forest fire?" "What happened?" The air was full of excited questions.

"Nothing really happened. I put it out, because I was afraid it might get over to the baby."

Emily's flashlight swept the battered slope of the dune above them and came to rest on Charlie, ragged and smudged but still smiling.

"Are you hurt?" Dr. Ruth asked in quick concern.

"No," Charlie drawled, "I can't say I've got as many blisters on my fingers from the fiah as the' are on my feet from the walk; but I am just a little tired, and if the day's ente'tainment is ovah I wish you-all would guide me home and lead me to my trundle bed."

"Tell us about it," Anna pleaded again as the little procession moved slowly off, but Charlie interrupted her to ask:

"Which way are we going? I thought that was the way to the lake over there. I started to run in that direction before I remembered the baby."

"You blessed little idiot from Dixie!" exclaimed Janet. "You can thank your lucky stars you had pluck enough to come back and fight the fire! If you had run far in that direction you would have been completely lost in the woods and swamps!"

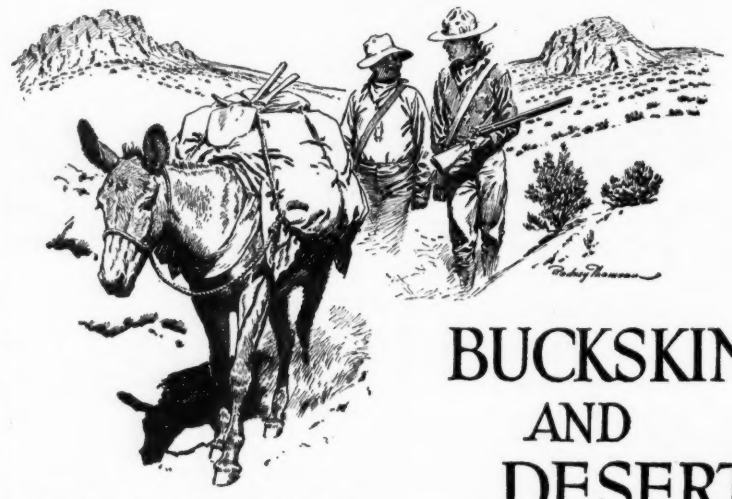
"The fire was going in the direction of the lake," Emily explained, "as well as in the direction of the Novaks'; and if it had kept on it would have arrived at our camp before very long."

"We're glad it didn't!" said Dr. Ruth.

"We-ell, so am I," Charlie admitted soberly. "I like this place a good deal bettah than I ever supposed I could. I feel as if I'd fought for home and native land on these shores."

"Good!" said Dr. Ruth. "We like you so much we want you to like our camp and our dunes too."

And as they made Charlie comfortable that night and listened to her amusing account of the fire there was in Camp Medico a feeling that the day had not been wasted.



# BUCKSKIN AND DESERT

## By Joseph T. Kescel

### *Chapter Two. The buckskin bag*

IN the direction Dal and Lee were traveling the country was a sagebrush desert that merged in the distance into a range of low mountains. They would lose no time looking for ore in that range, however, for Dal knew that the region had been thoroughly prospected. In fact he himself had prospected it with his uncle Frank, a scholarly man, known all over the Southwest as the "highbrow prospector." For nearly four years before his uncle's death Dal and he had roamed the country looking for ore, oil lands and power sites. In those years both had had many ups and downs, and Dal had gained an amount of practical knowledge exceptional in a boy of his age. Uncle Frank was a geologist and an unusually good teacher, and people soon began to refer to his nephew as the "young highbrow prospector."

All day and for several days afterward the boys plodded onward, through rocky cañons, up steep hillsides or along windswept ridges. Nothing escaped them. They were prospectors again, and their eyes were sharp for every peculiar rock, every outcrop and every discolored fissure. They were looking not only for gold and silver but also for coal, iron, lead, zinc and copper. Gradually their trail turned from the south to the southwest. One afternoon they stopped for provisions at a small town where they heard of Pedro and Navaho Charley.

"The Navaho was on a prospecting trip," said the storekeeper. "Or I reckoned he was from the looks of his burro. And, well, the Mex, who came along a couple of days later, may have been doing some prospectin' himself, though he didn't say."

"It looks as if Pedro were on Charley's trail," Dal remarked when he and his partner were again in the open. "Guess it's all right, though; Charley can take care of himself."

As the days passed the partners worked farther and farther to the southwest; finally they made straight for the Funeral Mountains in southern California—the gray, sombre range where many a venturesome prospector has come to the end of his trail. Long and hard was the march; yet at last Smoky and the boys broke from the maze of cañons in the rugged mountains and looked down over the foothills at a large oblong depression, Death Valley.

"Jimminy codfish. So that Death Valley!" Lee exclaimed, peering out from under his upraised hands. "Long time I hear 'boutum. Now I seeum. Awful place, huh?"

"Well, I shouldn't consider it the most ideal spot in the world, Lee. And the man who named it knew what he was talking about. Anyway I thought so the first time I drifted in there. And it's hot down there too, pardner. Baking, broiling, blistering hot!"

"Hotter than up here?" Lee asked; his shirt was open at the neck, and beads of perspiration were running down through the dust on his cheeks.

"Yes, quite a bit. At this time of year the thermometer sometimes goes to almost a hundred and fifty degrees."

"Wo-o-oh!" gasped Lee, starting to mop his face with a red cotton handkerchief. "No wonder so many poor mans go clazy in head out here! For all time one seeum things. Lite now I seeum houses and gleen fields. 'Course I know him nothin' more than milarge,—that funny business in sky,—but lots of mans no savvy that. So he keep goin' ahead, sayin' to himself, 'Fine!' Then good-by! Coyotes pickum bones clean."

"It does look like a mirage, doesn't it?" Dal replied with a grin. "But what would you say if I told you it wasn't?"

"I say that you gone clazy, and I better talk to old Smoky there!" was the prompt response.

"Well, I guess you'll have to say it then, pardner, for what you're squinting at is real," Dal replied and laughed. "That's the Furnace Creek Ranch. I didn't mention it because I wanted to surprise you. It supplies the men working in the borax mines with fresh beef, pork and vegetables. There is sixty acres of it under irrigation, for it doesn't rain much out here. They pipe the water, from the mountains, and let me tell you that it's hot by the time it gets there. Barring accidents we ought to reach the ranch in good shape; and we ought to leave in just as good shape, unless we eat too much of the good things they give us. So come on."

Driving Smoky ahead of them, they went down the winding trail into the valley.

"I'm glad to see you again, Young Highbrow!" was the ranch foreman's greeting as he gripped Dal's hand. "I'm glad to meet your partner too. There's lots of alfalfa ready for Smoky under the sheds. Make yourselves at home now."

"Hey, mister!" asked Lee as soon as he got the chance. "How hot today?"

"How hot? You mean how cold," replied the foreman jokingly. "There's a blizzard on today. The thermometer registers only about a hundred and thirty."

It took Lee several seconds to catch the spirit of the joke. But when he did his fat face grew long, and he pretended to shiver. Then he said very deliberately, "'Tis kinda blizzardly. You lend me overcoat."

During the afternoon the foreman told the boys that Navaho Charley and Pedro Letran had been at the ranch a few days before. "Charley came first," he said. "Then after having a powwow with some of the Indian ranch hands he pulled out at night. The greaser came along a day later; he asked a good many questions about the Navaho, and then he also left."

For a day the partners took life easy. With the cooler air of evening, they again started on the trail. As they said good-by and started south an early moon was showing between the saw-tooth peaks. Other nights and other days came and went, and all the while the boys got farther and farther from human habitation into the wildest part of the mountains. Dal had never been in the region before and consequently could not find his way with complete ease. It is not strange therefore that darkness should have overtaken them after a hard day's tramp over a rugged country before they had found the rock-bound spring where they were planning to camp.

Suddenly Smoky stopped and with his long ears flipped forward peered down into a black ravine. Dal and Lee were alert in an instant. But they could hear nothing; nor could they see more than a few feet into the inky darkness. Lee started to order the old burro ahead, but closed his mouth suddenly. Hadn't he heard something? A groan? He certainly had heard a noise; probably it had come from some animal. At last he turned to Dal and whispered, "You hearum too?"

"Yes. I did hear something, Lee. But—"

Dal stopped short, for out of the darkness below had come a faint but unmistakable groan.

Making a fire ball from several pages of a handbook of United States mining laws, they threw it into the ravine. A man clad in overalls lay crumpled up on the rocky bottom.

With Smoky's pack rope Dal let himself down to the inert figure. "Who are you?" he asked.

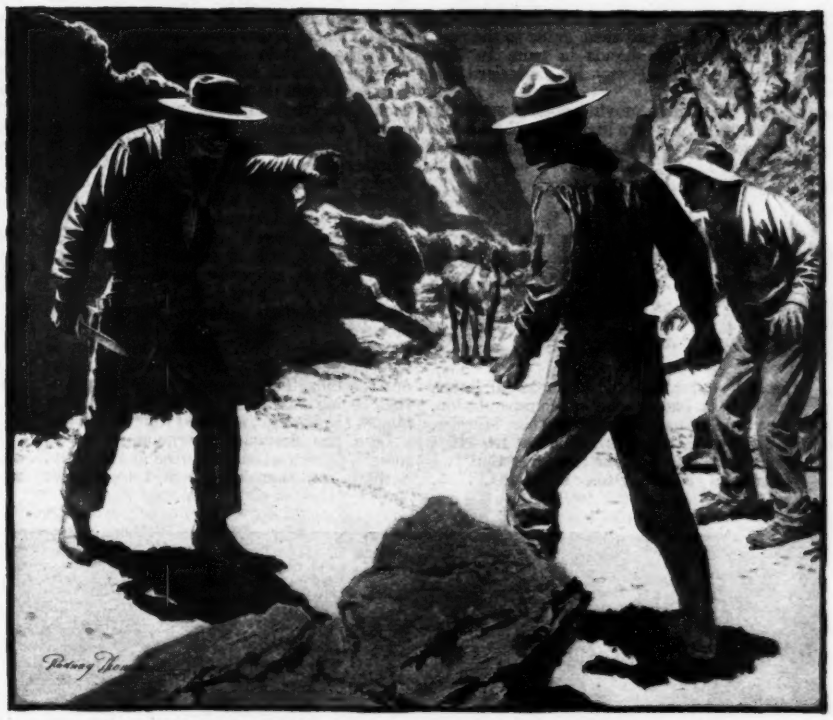
The man neither spoke nor moved. As the fireball had gone out, Dal struck a match. Even then he could see no more than a swarthy cheek and black hair, for the man's face was hidden against his arm. Dal gently turned the inert body and, striking another match, by its flickering light recognized the familiar features of Navaho Charley.

All night the boys did what they could for the injured man. From the Indian's delirious mutterings Dal gathered that he had been in search of a wonderful deposit of ore that his father had told him of, and that he had not been able to find, although he had a map on which the site was marked.

Soon after daybreak Navaho Charley for the first time recognized the faces leaning over him. Then he fixed his gaze on Dal and in a voice that was little more than a whisper said, "I bad hurt. Yesterday I get sand in my eyes and no see good. Last night I fall down here. Little while I be in happy hunting ground. Inside my shirt, buckskin bag. In bag a map which tell where to find ore. All for you boys. Look out for Mexican. My father—"

Navaho Charley had reached the end of his trail.

Some hours later, after they had marked the Indian's last resting place with slabs of rock, the boys opened the buckskin bag. Their two heads were bent over it, and



*Fingers tightened on knife hilts. One or the other man must soon give way*

Lee's brown fingers were slipping into its gathered throat when like a flash Dal drew the buckskin thongs tight. Pedro Letran had stepped silently from behind a huge boulder and was walking menacingly forward. Dal slipped the bag into his overalls pocket. Then he looked to see whether the Mexican was armed; a horn-handled knife was sticking out of its sheath, but his revolver holster was empty and flapping.

"I want that bag," Pedro said, dropping a hand to the hilt of his knife.

Lee Lung was frightened. He had not roughed it so long as his partner, and anyway he preferred to trust to his wits rather than to physical strength. Dal, though he was not a fighting man, knew how to stand up for his rights. He told Pedro shortly that he could not have the bag.

"I'm goin' to have it!" said Pedro, drawing the knife part way from its sheath.

"Are you?" was Dal's cool retort; his hand swung up to his hip and rested on the hilt of Navaho Charley's knife, which on the death of its owner he had attached to his own belt. His steady gray eyes held the Mexican's beady black ones.

"I tell yuh I'm goin' to have it!" Pedro roared and drew his knife.

Dal said nothing, but drew his own.

Lee checked a wail of fear, then stood tensely upright. All was dead silence. Even old Smoky with his ears tipped forward as he watched the scene hardly seemed to breathe. Eye still held eye. Fingers tightened on knife hilts. One or the other man must soon give way. The sun beat down pitilessly; fresh beads of perspiration formed on Pedro's forehead, and the corners of his mouth twitched slightly. And then as if that tremulous twitching were the sign for which Dal had been waiting he said coldly, "You'll do what?"

Nerve had won; Pedro was beaten. He turned and walked away muttering.

Lee let out a sigh that seemed to come from the region of his waistband. Two shorter ones followed before he managed to say, "That gleaser, he velly much worse than man-eatin' Chinese dragon! My heart go flip-flop and thump-thump so that I think it bust loose! You no feel sclared?"

"Did I feel scared, pardner? Now you can bet that I did. There's one thing we don't want to forget, though: the Mex hasn't any notion of letting us get off so easy. He'll be on our trail from now on, never fear. It looks as if he'd lost his six-shooter, or he would have had it on him. Still it may be in his pack outfit, wherever that is."

Dal was right when he thought that Pedro might have lost his revolver; the weapon lay far down in a narrow crevice, where it had accidentally fallen the day before. But, as the boys knew nothing of that mishap, they quickly put their shotgun together and slipped a buckshot cartridge into the barrel.

"Now we takeum look at map, huh?" said Lee with his glance wavering between his partner and the spot where he had last seen the Mexican.

"I think we ought to, Lee, because then we'll know which way to head. If the ore is close round here, maybe we'll want to circle way back in the range to put Pete in the air. He'll have plenty of chance to locate good ground if there's anything big."

Dal seated himself on the pack outfit, which was lying at the base of a frowning gray rock. Lee joined him. Old Smoky moved closer and looked down as if to say, "I want a peep at that, myself."

All that the bag held was a thin, pliable folded square of buckskin. Dal had expected to find a paper; so had Lee. But there was nothing except the tanned piece of silken skin; yet it was a map and a very wonderful map that lay before them—a map not drawn with paint or ink or pencil, but one in which every line was a hair, a black human hair, probably that of an Indian.

Lee kept looking round, but Dal's gaze stayed fixed on the fifteen-inch square of buckskin and its hair lines. Finally he raised his head and turned to his partner. "I've puzzled it all out," he said slowly. "Now prepare yourself for a long hike; that is, if you're game to see this through to a finish. For according to the map the ore isn't in California at all, but 'way over in Arizona, my native state. Nearly all the mountains and peaks are marked with their old Indian signs, and as I know most of them, we shouldn't have much trouble in landing pretty close to the right spot. We don't want to forget, though, that since Charley couldn't find pay rock, we may not be able to do any better. Still it looks as if we ought to give it a try. What do you say?"

"I say yes, plardner!" Lee responded quickly. "Come 'long! Let's go!"

"All right, Lee. But what if we wait a little while till we've had something to eat and a little rest? Then tonight we can hit the trail with all there is in us and perhaps throw the Mex off our track."

Lee agreed, and as the boys neared the spring they saw Pedro, a little farther up the cañon, walking away behind two burros, one of which had been Navaho Charley's.

Midnight found Smoky packed, ready for the start toward Arizona. Daylight found him unpacked and lying in the shelter of a towering cliff; the partners were stretched in their blankets within arm's reach of him. Lee was asleep, but Dal was only resting. Later Dal would sleep while his partner kept watch. Thus they spent the day.

When the first stars had appeared they resumed their march to the east. They did not know whether the Mexican was following them, but Dal thought that he was. Pedro had the reputation of being an expert tracker. It was several days before the partners ventured to travel forward by daylight. And even then, though the grim, scarred and age-worn Funeral Mountains were now far behind them, Dal still looked back from time to time to see whether Pedro had picked up their trail. But he saw nothing except rolling hills, sandy flats, patches of mesquite, cactus and sagebrush knolls.

One day, a week after they had crossed the Colorado River and were well into Arizona, Dal sat on a big rock, examining the map. Thus far they had kept a fairly straight course, occasionally passing through some town, where they had refilled the provision sack. They had seen or heard nothing of Pedro and were complimenting themselves on having thrown him off their trail.

After a while Dal handed the map to Lee and then reached down and took off his shoe. "Sand's bothering," he said, removing his sock and turning it inside out. "Guess I'll give my hoof a sun bath while I'm figuring out where we are."

He took the map again, and as he ran his forefinger along a winding black line to an arrow-headed mark he added, "That's Utah Peak." His bare foot kept swinging back and forth just above the ground in front of a sunlit crevice from which a pair of snaky eyes were peering. "We had better go northwest for old Utah so as to dodge a bad piece of desert and cross a strip of country where there's plenty of pasture and water." The moving foot swung closer to the crevice. "And, as Pete doesn't know where we're heading, why, he'll have to tag along."

*Navaho Charley*

All at once Dal gave a tremendous start and, jumping from the rock, looked to see what had bitten him. On the ground, now out in the full glare of the sunshine, he saw a repulsive reptile mottled with dark brown and dirty white; it had a snaky head, a toad-like paunch and a long tail similar to a lizard's.

"Gila monster!" he cried.

A Gila monster it was and a big one, for it was more than a foot long. Even though it saw Dal reach down for a loose stone, it defiantly stayed where it was with its head up, its pink paunch expanding and contracting and its tapering tail moving gently from side to side. The stone swished through the air; the Gila monster flattened out—and a moment later Dal was examining on the inside of his foot just below the ankle a tiny laceration from which oozed a drop of blood.

"O plardner, you get bite by that awful thing which I know lots worser than snake!" Lee exclaimed, already on his knees to give aid. "Now you go die, huh?"

Like any normal boy in such circumstances, Dal didn't feel like laughing; nor did he feel like crying. On the whole his voice was steady when he replied, "Nope, I don't think I'll die just yet. The bite of a Gila is pretty bad, though. Some folks say it's worse than a rattlesnake's; others say it isn't. Still all agree that it's mighty dangerous, and that something ought to be done right away after a bite. Give me a cartridge, will you?"

"Hey? What you do?" Lee asked and added quickly, "You goin' to shoot foot off?"

*"Inside my shirt, buckskin bag"*

DRAWINGS BY RODNEY THOMSON

"Oh, no, pardner!" Dal slid along the ground until his back rested against the rock upon which he had been sitting. Then he pulled one leg over the other until the injured member was within easy reach of his hands. After that he took out his knife and opened the sharpest blade. He tried the edge and found it sharp. With a steady hand he reached down and made two cuts where the wound was, one across the other.

The blood was flowing freely when he took the cartridge shell from Lee and cut it open. Laying powder on the crisscross cut, he touched it off and then, game to the core, lay clenching his hands in pain. In that crude and painful way he cauterized the wound.

Just then three moving objects suddenly topped a barren ridge little more than half a mile away. Two of them were burros, and the third was Pedro Letran.

TO BE CONTINUED.

# WHEN THE OLD SQUIRE HELD COURT

*By* C. A. Stephens

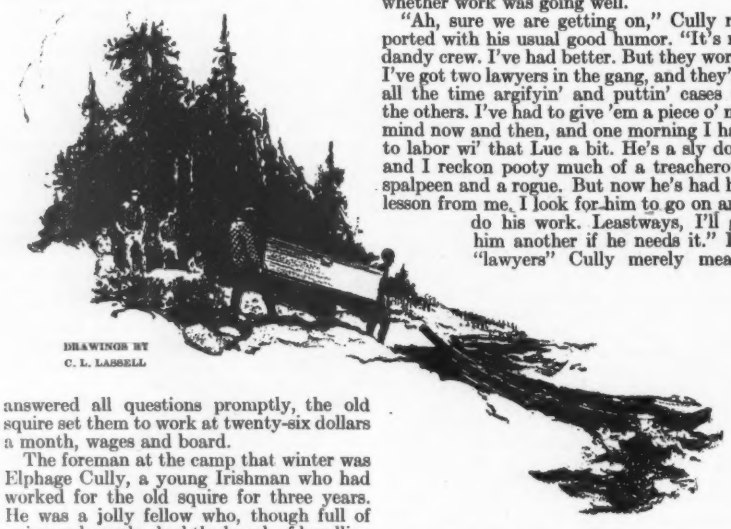
A GOOD road now leads from our old farm in Maine to the head waters of Lurvey's Stream. I drove up there recently in a farm truck and was able to find the site of the old squire's lumber camp; afterwards I followed down the bank to Sister's Falls and the Little Sister below.

Today in dry summer weather the stream is little more than a brook, and the falls are the gentlest of cascades; even in spring the stream no longer carries its former volume of water, for the grand old forests on its head waters have been ravaged, and much of the country has been burned over by forest fires. But years ago in March when the winter snows were melting it was a swift-rushing torrent, and the falls were miniature Niagaras.

There was a crew of eighteen axemen, now called lumberjacks, at the camp one winter some fifty years ago, all of whom were French Canadians from over the boundary. At that time axemen frequently came down from the province in a body to work for the winter at a Yankee logging camp.

Often they were all from one hamlet and wished to work together; often too they were related to one another, and sometimes their spokesman brought a letter from their parish priest to the man who hired them, saying that they were exemplary young men and good workers. Occasionally too, as was the case with the gang of which I am speaking, they brought their own cook and his assistant with them. As a rule they were good, honest workers, and some of them were expert axemen.

But the crew at the old squire's camp that winter was of a different sort. The men brought no letter of recommendation; but, as they seemed strong and active and answered all questions promptly, the old squire set them to work at twenty-six dollars a month, wages and board.



DRAWINGS BY C. L. LASSELL

The foreman at the camp that winter was Elphage Cully, a young Irishman who had worked for the old squire for three years. He was a jolly fellow who, though full of quips and pranks, had the knack of handling crews of loggers and getting fair service from them. He would tolerate no shirking and resorted promptly to his fists if a man defied him. As a rule the men liked him.

Three weeks after the men went to work the old squire received a parochial letter, and it was hardly one of commendation. The very respectable old Father Mercier, of St. Hyacinth parish, said that he felt it his duty to inform their employer that two of the crew, Phelim Dosier and Luc Crillon, were of a wrong turn of mind and had given the parish authorities much trouble. In short, they would bear watching. Such was the substance of the letter, which was written in French.

Immediately afterwards the old squire drove up to the camp on a sled to see whether work was going well.

"Ah, sure we are getting on," Cully reported with his usual good humor. "It's no dandy crew. I've had better. But they work. I've got two lawyers in the gang, and they're all the time argifyin' and puttin' cases to the others. I've had to give 'em a piece o' me mind now and then, and one morning I had to labor wi' that Luc a bit. He's a sly dog, and I reckon pooty much of a treacherous spalpeen and a rogue. But now he's had his lesson from me. I look for him to go on and do his work. Leastways, I'll gi' him another if he needs it." By "lawyers" Cully merely meant fellows who complain and argue a good deal so as to avoid working.

After advising Cully to keep an eye on the two men whom Father Mercier had mentioned and in case of further trouble to send word down to us by the cook's assistant, a French boy of perhaps fifteen years, the old squire came home.

We heard from the camp whenever the weekly sled with supplies for the men and the teams went up to them. Cully sent word each time that all was well, though he seemed to become less and less enthusiastic about his crew. He did not inform us whether he had been obliged to give Luc and Phelim further lessons; we were told afterwards that he had been obliged to thrash them, and that they had plotted revenge.

The winter's work was to stop at nightfall of March 10, and in order that the crew could go home immediately on the morning of the 11th the old squire went up to pay the crew in Canadian currency, which he had procured for the purpose. On such trips my cousin Addison usually went with him to help in checking the pay roll and counting out the bills. There wasn't much danger of their being robbed, but nevertheless they almost always took a loaded rifle with them.

Late the previous afternoon, however, something serious had occurred at the camp, nothing less than an attempt to murder Cully. As it was the last day of the winter's work, he had not required the crew to do much. The men were to have plum duff for dinner and certain other luxuries not on the regular bill of fare. There remained, however, one small landing of logs on the opposite bank to be "broken in"; that is to say, rolled down into the water. The winter's cut of spruce logs would then be ready for the gang of six rivermen who were soon coming up to drive it downstream to the mills. The snow had now largely melted; there had been rains of late, and the stream was a rapid, swirling torrent; the deep roar of Sister's Falls half a mile below could be heard plainly at the camp. But they had a bateau, or river boat, in which they could easily cross.

*"Men, you are all lying to me," he at last said sternly*

"Come on now, boys," Cully called out, encouragingly. "Get ye into the bateau, eight or nine of yez at a time, and I'll set yez acrost. Then we'll bruk in that last landing o' logs."

"Oh, leave it to the river drivers!" some one said.

"Leave nothing at all!" retorted Cully. "Sure, 'tis our work, and none of yez has hurt yourselves wi' work this day. Come on now. Look alive! Is it sleep ye'll be wantin' after the good dinner our old gent has fed to yez?"

Grumbling a little, Luc, Phelim and the rest crossed in the bateau and rolled the logs down the bank; the work required scarcely more than an hour. Cully then bade four of them go fetch the wangan from a shed in which the axes, peaveys and other tools had been kept at night while they were working on that side of the stream. A wangan, it may be said, is a large box or chest with a lid that can be locked or hasped. Ours was a chest built of thick pine plank and was six feet long, three and a half feet wide and three and a half feet deep.

It was now near nightfall. The men were loading the wangan in the bateau in order to take it over to the camp when they heard a slight rustling inside and discovered that a family of moose mice had taken up their abode in the chest, the lid of which had stood open a crack.

"Ah there, ye little beauties!" Cully exclaimed and, reaching down with his gloved hand, tried to catch them.

The mice proved to be nimble, and he was obliged to bend over head and shoulders in the deep chest. Quick to see that he was at a disadvantage, Luc and Phelim, who were behind, seized him each by an ankle, tumbled him into the wangan and, probably helped by some of the others, banged down the cover and hasped it.

For the moment Cully thought it was a bit of horseplay, a rough joke! "Here, here, ye spalpeens!" he yelled. "What the mischief are ye up to? Let me out, I tell yez!"

But it was no joke; their intent was murderous. Without a word they lifted the wangan into the bateau and shoved it out on the swift-running stream; and all the while Cully shouted and remonstrated and threatened them with condign punishment. They all stood there and without lifting a hand to prevent the catastrophe watched the bateau and wangan go down to the falls. Some of them ran along the bank and saw them go over. As the bateau soused down into the great pool at the foot of the falls the wangan fell out and immediately grounded on stones on the same side of the stream.

It was growing dark. Whoever was looking saw nothing of the wangan; they supposed that it had filled with water and had sunk in the pool, and that Cully was in it, drowned.

Later the crew got the bateau out of the pool, carried it back round the falls and then crossed to the camp for the night. There during the evening while waiting for the old squire to come up and pay them off they agreed on a story to account for Cully's disappearance; namely, that it was a sad accident and had resulted from an attempt on his part to cross alone with the wangan in the bateau; because of the strength of the current he had lost control of the boat. How to account for Cully's being inside the wangan, in case it were recovered from the pool, is a problem they apparently did not consider. Our folk concluded afterwards that most of the crew had had little to do with the affair, but that after it had happened Luc and Phelim had intimidated or persuaded the rest to stand together and vouch for the truth of the story they had invented.

There was but one drawback to the fine tale: the wangan was not at the bottom of the pool. It had taken in considerable water and was partly submerged, but it had floated out amid foam clots and driftwood at the foot of the pool and from there drove swiftly on down to the Little Sister three or four hundred yards below. There the rush of water sets in strongly to the right bank, and as the wangan went over the brink of the cascade it turned a complete somersault and struck a submerged rock at the foot with such violence that the lid burst off, and the half-drowned occupant shot headlong out.

Luckily for Cully he plunged into water no more than waist deep and was not so far gone but that he was able to crawl out. The poor fellow was dreadfully bruised and only half conscious, but he got ashore somehow and lay on the bank awhile, shaking the water out of his ears. Then he started to go back to the camp with the highly laudable purpose of settling accounts with Luc and Phelim. But reflecting on the way that they would now probably murder him in good earnest, he turned round and started to walk down to the old squire's. He had gone but a little way, however, when he became too ill to proceed. He lay down for a while and then walked and crept for two miles or more till he reached the small house of a habitant in a clearing by the roadside.

There the old squire and Addison found him the next forenoon on their way up to the camp; the French woman came to the

door and hailed them as they were passing. Cully was in a bad plight; he was dreadfully battered and was hardly able to speak above a whisper, but he grinned as he told them after his own fashion what had happened.

"Don't ye pay them, squire! Don't ye pay them today!" he pleaded. "Hold it back for a few days till I'm on me feet again, and then I'll sittle wi' that Luc and Phelim pair!"

There was no doubt of Cully's desire to settle with his assailants in his own way. He wanted to dress and go up to camp with the old squire, who with difficulty persuaded him to lie down in bed again. Then the habitant went to fetch a physician, and the old squire and Addison continued on their way.

What should they do? Clearly there had been an assault with intent to kill. The old squire was sure that Cully's two assistants deserved a term in prison. But they were British subjects; an effort to arrest and punish them under the laws of Maine might lead to complications that he knew our authorities had much rather avoid. Besides, since the camp was so near the boundary, it was more than likely that before a sheriff and posse could arrive the culprits would escape over the line and that no redress of any sort would ever be obtained. In the circumstances the old squire determined to make a virtue of necessity and do the best he could for Cully, who certainly deserved something in the way of reparation.

They reached the camp at about eleven o'clock and found the crew all there awaiting them; the men were quiet and rather suspiciously watchful of their faces. The old squire told them to go inside to be paid. Then he sat down at the long table and opened the valise containing the money, which had been already put into envelopes. Addison casually took his position near the door. Thus far no one had said anything about what had happened the night before. But now the old squire asked, "Where is Mr. Cully?"

Luc and Phelim began hurriedly to tell their story: "Mr. Cully, he drowned. Mr. Cully, he get in bateau with wangan. He start to cross over. He lose paddle. He go down over falls. He drowned. We find bateau down below. We fetch bateau back. Wangan sink," and a great deal more of the same sort, to which the others kept nodding their heads in confirmation.

The old squire heard the story through and then stood quite still for some time, regarding them fixedly, looking first one in the face, then another. "Men, you are all lying to me," he at last said sternly. "You have tried to murder Mr. Cully. You put him into the wangan and sent it over the falls. You will have to be arrested and go to prison for this. Mr. Cully is not drowned, as you think; he is alive. But he is seriously hurt; he may be injured for life. He will have to have doctors, and you who tried to drown him must pay for it."

The whole crew stirred guiltily and glanced at one another in alarm. Addison, who was observing them, saw Luc's eyes rove to the door and then rest on the valise containing the money. Guessing what was in his mind, Addison rose quickly, put his back to the door and cocked the rifle.

"Now you, Luc Crillon, and you, Phelim Dosier, must each pay Cully fifty dollars," the old squire continued, and, opening the envelopes that contained their wages for the winter, he abstracted fifty dollars from each and then bade them take the balance and go out.

Addison stood aside, and, looking cowed and sullen, they passed out by him.

The old squire now called the name of each of the others in turn. "You were all concerned in this criminal outrage," he continued. "You all tried to lie about it. Every one of you must give Cully twenty dollars from your wages."

He withdrew the money from the envelopes, gave them the balance and sent them out one after another.

The cook and his assistant, who had evidently had nothing to do with the assault on Cully, were paid in full. The old squire bade them prepare dinner as usual for the crew; but on going outside he found that not only Luc and Phelim but all the others had departed, taking the winter road toward the border. Probably they feared they might be detained and arrested.

"I suppose that I hardly acted legally in that affair," the old squire often said afterwards. "Perhaps I laid myself open to the charge of remotely compounding a felony. But I thought at the time that I was doing as near right as possible in the difficult circumstances."

He wrote soon afterward to Father Mercier, informing him of what had occurred at the lumber camp and leaving the good old priest to deal as he thought fit with his recreant parishioners.

Cully recovered in the course of a week or two. What he said when the old squire handed him the money was: "Four hundred and twenty dollars! Holy smoke! All that money for five minutes ride in the old wangan! Take me right back up there agin, squire!"

"Did you feel very much scared, Cully, when you went over the falls?" Addison asked him.

"Begorra!" said he. "I was so blazin' mad I couldn't stop to think of it!"

# TEN MINUTES SLOW

## By Hugh F. Grinstead

WHEN Bert Kelley seated himself at breakfast he looked at his watch. It had run down. He wound it and set it by guess at a quarter past six. Half an hour later while hurrying past the courthouse on his way to work he glanced at the big clock and found that he had set his watch ten minutes slow.

"Oh, I'll just allow ten minutes when I look at it and set it right when I have more time," he said to himself and slipped the watch back into his pocket.

Young Kelley was employed as extra fireman and general helper in the engine room of the big smelter where copper ore was crushed and the metal extracted and cast into bars. He arrived just as the whistle blew and was busy until the noon hour. He had not so much as looked at his watch all the morning, and when he went out to luncheon at a neighboring restaurant the fact that it was slow had passed completely from his mind.

On the way back to the mill after dinner Kelley on looking at his watch found that he had almost twenty minutes to spare before the work whistle would blow. It was his duty every day while the machinery was at rest to oil the crank by the side of the massive flywheel. He determined to set about it at once.

The engine that furnished power for the stamping machines was of an old type with a flywheel sixteen feet in diameter; a rim of lesser diameter bolted to the big wheel carried the driving belt. A cement-lined pit accommodated the lower part of the flywheel; the upper part went through an opening cut in the floor over the engine room and rose two feet above it. The opening was three feet wide and approximately seventeen feet long. The driving belt ran up through it to the pulley on the shafting that ran along the ceiling.

The plant, which was built on a steep hillside, had not been built for its present uses; because of that and of its position against the hillside, many of the arrangements were not what they should have been. The engine base, for example, was set higher than the boiler room, because there was no other way to set it.

Since the crank to be oiled had to be reached from the wheel pit, Kelley, getting an oil can and a handful of waste, went up stairs to the floor above. Grasping the rim of the big wheel, he swung down to the drive wheel and then stepped upon the crank bearing. The narrow space in which he was compelled to work was virtually a covered pit. On one side of him was the flywheel; on the other was the central wall of the mill foundation. One end of the pit was boarded up, the connecting rod from the engine came through a small passage at the other end. When standing up Kelley could touch the floor above.

Before he unscrewed the cap from the oil cup he looked at his watch again. It was a quarter to one. In a few minutes he would have his task done. He busied himself polishing the brass cup with a handful of cotton waste and wiping off surplus oil from the bearings. As he worked he heard footsteps on the floor above his head and wondered why any of the employees should be entering that part of the building so long before the machinery started.

He filled the oil cup from the can and picked up the brass cap to screw it back into place. As the threads caught he was startled by the shriek of the whistle. He could not believe that it was already one o'clock. He gave a final turn to the cap and stood up with his feet on the squared surface of the connecting rod just behind the crank bearing.

But even as he raised himself from a sitting posture he caught a sound more sinister than the whistle; it was the hiss of steam entering the idle cylinder! He felt the machinery tremble for an instant with the force of the pent-up steam; then the crank jerked forward slowly and imparted a barely perceptible motion to the big flywheel.

Kelley suddenly realized that the engine had started; in the same instant he remembered that his watch was ten minutes slow. It was one o'clock.

Since the belt wheel was already in motion, he could not step upon it and climb up the way he had come; nor could he crawl back over the engine. He gave a frightened shout, but the hiss of escaping steam smothered his voice. In the narrow space there was no place to stand except on the moving connecting rod.

The maximum speed at which the wheel ran never exceeded four revolutions a second, but that was fast enough to shake a man off the polished surface of the connector. In three or four revolutions the shaft would be moving at full speed, and Kelley saw himself thrown off and crushed against the wall or caught in the flying spokes of the big wheel.

He looked up despairingly. He could not climb back past the flying spokes. When the crank passed centre and swung downward Kelley felt as if the earth were dropping from beneath his feet. He gasped and threw out his hand to steady himself. The next instant he felt himself being lifted as the crank came upward to complete its first revolution.

Fearful that he might be thrown off when it again descended, he quickly shifted his position along the connector and away from the crank. He moved three or four feet, keeping his balance by leaning backward and pressing his hands against the wall. In his new position the vertical motion was not so great.

If he could hold on for only a few seconds, the engineer might hear his calls and shut off the steam before the engine reached full speed.

Again and again he shouted, but the noise of escaping steam, augmented now by the rumble of the slowly moving machinery, completely drowned his voice. The wheels kept gathering speed!

A second seems long to a man face to face with what appears to be certain destruction. Kelley tried to devise some way out of his awful predicament, but all that he could think of was the big spokes of the flywheel as they raced upward scarcely a foot in front of his face. At first he could count them, but soon they came too fast for that. He felt the current of air that the wide rim set in motion. Everything round him seemed to be dropping. Indeed the wheel was the only thing that moved upward, the way he wanted to go. Why should he not go up with it?

The crank was again on the upturn; the wheel had almost completed its second revolution.

The spokes were chasing one another upward faster and faster; in another second they would be only a blur.

Kelley did not lose time in thinking over the plan that had popped into his head. It would be certain destruction to remain where he was; at worst he could only hasten the end by trying to get out now before it was too late.

He swung his arms round in front of him and leaned forward. He caught the moving rim of the big wheel, and was pulled off his feet. He felt as if his arms were being torn from their sockets, but he managed to keep his hold on the wheel.

A wheel sixteen feet in diameter moves rapidly at the rim even when going at so slow a rate as one revolution a second; Kelley felt himself being hurled upward at unbelievable speed.

Almost instantly he was at the top of the big wheel; he had just a fleeting glimpse of the floor as he rose above it.

He had not planned how he should get off the wheel when he reached the top, but he must get off somehow; if he held on, he should either strike the edge of the floor or be crushed at the bottom of the pit.

Lying with his chest across the wide rim, Kelley let go and spread out his arms.

Thrown off at a tangent, he sailed through the air like a flying squirrel and fell in a heap on the floor ten feet away.

Bruised and dazed, he sat up and got slowly to his feet. He could hear some one running toward him from the far end of the building. He staggered against a post and stood for a moment until his brain cleared. Then he drew his watch from the pocket of his overalls and set the hands forward ten minutes.

It was exactly one minute past one!

*He caught the moving rim of the big wheel*

DRAWN BY W. F. STECHER

HARRIS & EWING

*The seats of the Chief Justice and of the two senior justices of the Supreme Court, watched over by the American eagle*

## FACT AND COMMENT

LOOK PLEASANT; some one is always taking your picture.

> In Putting off your Tasks and Ruing them
> You waste more Time than you would spend in Doing them

AN OPINIONATED MAN is tiresome, but if you never express any opinions you will soon have none to express.

AN INSURANCE COMPANY has reduced its burglary rates on residences where there is a watch dog. The company finds that a dog is the most trustworthy burglar alarm. Perhaps the man who went into the store to buy a burglar alarm "that would alarm the burglar" may find a hint here.

PLENTY OF RUNNING WATER has in the past year done away with one of the former hardships of life in Jerusalem. Water has been brought to the city from the ancient Solomon's Pools; every house now has a supply; the streets are flushed clean, and most of the vile smells have ceased. Many of the American Jews who are trying to establish a home in Palestine live at Tel-Aviv, a new city by the sea, formerly a suburb of Jaffa.

THE CHIEF DIFFICULTY of hatching oyster eggs has been changing the water over the infinitesimally small eggs without losing them. A short time ago an employee of the New York State Conservation Commission thought of using a cream separator, which upon trial worked perfectly. The eggs come out of the cream spout and drop into new water, and the stale water flows through the skimmed milk spout. Henceforth it will be much easier to raise oysters.

AMERICAN SHIPS LIE IDLE in our harbors; yet two-thirds of the foreign commerce of the United States is carried in foreign vessels, and the proportion is increasing. Merely having plenty of ships does not overcome these three great adverse facts: foreign steamship companies have their lines well organized in all parts of the world, foreign governments subsidize their shipping, and foreign ships pay lower wages to their men and less for their food and comfort.

IN ORDER to keep the record intact we note that an American aviator lately flew at the rate of 259.15 miles an hour—indeed, for a few moments he went at a rate six miles an hour faster than that. Perhaps by the time this is published some one will have driven an aëroplane three hundred miles in sixty minutes. The limit of speed from the mechanical side has not nearly been reached; but it is a question whether a human being can endure the strain of a much greater speed.

IN TEXAS a man who was fond of watermelons began experimenting a few years ago by cross-pollenizing several of his favorite varieties. He succeeded in getting one melon that weighed more than seventy pounds and then, selecting seed to get still greater size, produced a strain of truly remarkable proportions. In the last four years he has raised melons that have been larger every year—eighty-seven pounds, ninety-three pounds, one hundred and two pounds and this year one hundred and twenty-three pounds. The melons of one entire crop on several acres averaged more than fifty pounds apiece.

THE SWEDISH ROYAL MUSEUM has appealed through the head of the mineralogical department for money to analyze all the minerals of the Langban mines, which from a single square mile have produced something like three hundred different minerals. Most of them are still unknown to science and apparently useless. The mines have been worked for centuries, principally for their yield of iron ore, specular iron and magnetite; but through all that period miners have been bringing home strange specimens to show to their families. Some of the minerals crystallize in regular shapes, others change color when exposed to light; one when heated turns into thin sheets that resemble gold leaf.

## THE SUPREME COURT AND CONGRESS

ALTHOUGH the Constitution does not specifically grant to the Supreme Court the power of passing on the constitutionality and therefore on the validity of legislation, the court has exercised that power for more than a century. It has exercised it because under a written constitution that divides the law-making power between two different sorts of bodies and definitely restricts it in the case both of Congress and of the state legislatures there must obviously be some tribunal to interpret the fundamental law and to determine when it has been over-ridden. Those who think that the power of reviewing legislation should be denied to the Supreme Court—and there are such persons—would, whether intentionally or not, destroy the Constitution itself. They would make Congress supreme, shake the federal character of our government, leave to the states only such limited authority as acts of Congress should permit and take away from the citizen every sure defense against a violation of the rights that the first ten amendments to the Constitution assure him. Neither Congress nor any other body of legislators can be trusted always to restrain the exercise of power within the limits of a written constitution.

The Supreme Court has in its history declared fifty acts of Congress unconstitutional. Nine of the decisions were made by a majority of only one vote; and it is those so-called five-to-four decisions that have aroused whatever adverse criticism of the court there is. When the learned judges divide so evenly it is evident that the unconstitutionality of a law is highly debatable. There is almost an even chance that the decision is wrong legally, and in such cases many persons are convinced that it is wrong politically. From them come frequent suggestions that the authority of the court be limited.

Senator LaFollette proposes that when the court pronounces a law unconstitutional Congress shall if it pleases reënact the law and that such reënactment shall be held to nullify the decision of the court. That is of course a revolutionary proposal, because it would give Congress the power to over-ride any provision of the Constitution, however clear, merely by voting twice to do it.

Senator Borah thinks it advisable to require that in order to render an act of Congress unconstitutional seven of the nine judges shall concur.

Mr. John H. Clarke, who himself sat on the Supreme Bench for six years, wants the court itself to impose a restriction on its own power by holding that when in disagreement with their associates two or more justices believe a law to be constitutional their position shall be considered to create a "reasonable doubt" with respect to the opinion of the majority of the court; and he wants the law in that case to be permitted to run. In support of his plan he quotes from a decision of the court itself, which declared that "every possible presumption is in favor of the validity of an act of Congress until overcome beyond a rational doubt."

Of course a five-to-four decision of the Supreme Court is always unsatisfactory and often irritating to what is perhaps a majority of the people; but it is a question whether the new plans would not in the long run create quite as much dissatisfaction. They would in effect give the decision to the minority of the court and might now and then permit laws to be enforced that would be regarded by a great part of the people as unjust and even as tyrannical, and that would be clearly unconstitutional according to the great weight of legal opinion both on and off the bench.

So long as we live under a written constitution that deals in principles that must be humanly interpreted we must expect that there will be some disagreement how men shall interpret them.

## BORROWING AND LENDING

"NEITHER a borrower nor a lender be," said Polonius in his farewell lecture of admonition and advice to his son Laertes; and he reminded him that "loan oft loses both itself and friend." What Polonius had in mind was of course borrowing or lending money. That should never be anything but a business transaction, carried out between responsible persons and based on definite resources and obligations. In such circumstances borrowing and lending may be profitable to both parties. Friendship does not enter into it.

But there are some things in which exchange by borrowing and lending seems to promote rather than to injure friendship—books, for example. Lending and borrowing books may be the pleasant habit of intimate friends and may encourage the growth of congenial tastes. When a person likes a book very much it adds to his pleasure if he can lend it immediately to some friend who, he knows, will enjoy it equally and will talk it over with him. Anyone who makes it a rule never to borrow or to lend a book—and we have heard of such persons—assumes an unsocial attitude and cuts himself off from one of the pleasures of friendship.

Moreover, if you find that you have made the mistake of lending a book to an irresponsible borrower, you can always ask for it without the embarrassment that asking for the repayment of a money loan would cause. "Have you finished with that book yet?" you can say. "I wanted to glance over the last part of it again." By some such subterfuge you can always recover your property without seeming to rebuke the borrower for his neglect.

When borrowing and lending lead to an exchange of ideas and stimulate interest and enthusiasm they are desirable practices; but borrowing or lending money never produces any such results.

## IS "JAZZ" GOOD MUSIC?

A FEW weeks ago a concert singer of high reputation set wagging the tongues of the musical critics of New York by including in a programme of severely "intellectual" music of the modern sort a group of popular songs that might fairly be described as "jazz."

The critics hotly debated whether such songs are really music, except of a barbarous sort. Was it dignified for a singer of taste and education to offer them to her audience? Most of them thought not, but one of the sprightliest of them argued that it was; for, as he pointed out, the jazz songs clearly interested and amused the audience, which sat decorously bored by most of the dry and often dissonant music that "advanced" composers delight in.

As for jazz in general, there is no question that it is music. Some of it is inferior music, noisy, unrefined and sensual in suggestion; but some of it is delightfully fresh and lively. It all appeals directly and strongly to the emotions, and that is one of the proper tests of music. Judged by that test, many of the most pretentious compositions of the present era can hardly be called music at all. The authors of them toil painfully to express through them definite intellectual ideas instead of generalized human emotions; therefore they scorn melody, abominate tune and prefer dissonance to harmony. Jazz has this advantage over such music: it does not aim at the impossible. It frankly consults the desire of the human auditor for rhythm and melody; it is primitive enough to interest everyone and not merely the theorist, the intellectual or the *poseur*.

The essence of jazz lies in the device of syncopation, a device that puts the accented notes of the melody on the naturally unaccented beats of the measure, and thus produces the effect of a double rhythm that is piquantly unexpected and oddly exciting to the nerves. There is nothing undignified about syncopation. All the great composers have used it: Beethoven was fond of it. The danger is that it may grow monotonous and therefore tiresome. It can be overdone, and for the last few years it has been overdone until the public has been so vitiated in taste that it regards any other musical diet than the highly spiced and peppered dish of syncopation as tame and unpalatable.

But, though jazz can be defended as conceivably and occasionally interesting and meritorious, it is too often merely sensational and shameless. Since the music of an age does give a clue to the mental and spiritual qualities of those who live in that age, it is the most serious of indictments against our own times that the popular songs so often have utterly inane or viciously suggestive words, and that so much of the instrumental music should consist of barbaric noises produced by performers who accompany their racket with the struts and wriggles of a drunken savage. Jazz of that kind—and it is so common that we often think of it as the only kind—is bad through and through.

There can be bad music, in the sense of harmful music, just as there is bad literature; and jazz is so often bad that we shall be glad when it goes out of fashion, leaving behind it perhaps a few songs that will give legitimate variety to a concert singer's programme.

## ELIMINATING PROFITS

ONE of the most misunderstood words in our language is profits. An evidence of it is the glib way in which it is proposed to reduce the cost of living to consumers or to increase the incomes of farmers by eliminating profits through coöperation.

Profits are not always added to the price of a product. The person who receives profits gets them as often by reducing his cost of production as by raising the price. An unusually skillful wheat grower who can keep his costs below those of most other wheat growers may make a profit even when he sells wheat at the current price. A coöperative society made up of consumers of wheat could not grow wheat any cheaper than it could buy it unless the management were as good as that of the wheat growers who now manage to grow wheat at a profit. Similarly, an unusually capable middleman may make his profit, not by forcing the price down to the producers or by forcing it up to consumers, but by reducing his cost of handling and merchandizing below that of most of his competitors. His less capable competitors do not as a rule make any profits at all, and the least capable of them are always losing money and going into bankruptcy. The same fate always overtakes a coöperative society that does not provide superior management, even though it buys and sells at the current prices.

When middlemen make their profits, not by superior economies in handling and merchandizing, but by manipulating prices the chance of the coöperative society arrives. Eliminating such profits may either increase the payments to producers or decrease the price to consumers.

Profits are also sometimes made, not by superior economies in handling goods, but by skillful advertising and salesmanship, whereby the consumers are induced to pay higher prices than they would otherwise pay. Clearly, such profits as are made by that method are added to the price that the consumers pay. A coöperative store, if it can sell at all, can undersell the dealer who makes his profits in that way, but it may not be able to sell at all. Whether it can sell or not depends on the customers of the store. If they know what they want without being told and are willing to buy it without being persuaded, the coöperative store can sell cheaper than a store that has to spend a great deal on advertising and salesmanship.

The opportunities for the coöperative society are quite as good, however, where the middlemen make no profits. When all who are handling a given product are inefficient, when there are no great organizers among them with the courage and the foresight to revolutionize the methods of handling, it is unlikely that any of them will make much profit. Although in the circumstances there are no profits to eliminate, a coöperative society that is managed by men of superior business talent may either increase the payments to producers or reduce the price to consumers. It accomplishes the result by substituting superior management for inferior management. But where the middlemen are already showing superior management

in the form of economical handling and merchandizing it is difficult for a coöperative society to improve the situation. The promoters of coöperation should consider these points carefully.

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PERRY MASON COMPANY
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# CURRENT EVENTS

ONLY two of the twenty-nine governors whom Governor Pinchot invited to Harrisburg to discuss methods of controlling the anthracite business appeared at the conference, although nine other states were represented by other officials. Governor Pinchot in an address that he read to the conference characterized the anthracite industry as a "greedy, defiant, relentless monopoly" and recommended that the coal-using states form a compact to establish a commission that should strictly regulate the industry. His plan seemed to find little favor with the other governors and the delegates. They foresaw delay in organizing such a compact and constitutional difficulties in administering it. They thought that regulating the industry was the duty either of the State of Pennsylvania or of the general government, and several of them declared that, if Pennsylvania would exercise its undoubted powers, most of the abuses would cease.

THAT extraordinary impostor, Dr. Frederick A. Cook, has at length made the mistake of engaging in the kind of swindle that the courts take notice of. He was the chief figure in a most barefaced plot to get money by the sale of worthless oil stock, and, having been found guilty, he has been sentenced to spend fourteen years in jail and to pay a fine of $12,000. It is remarkable that so many people should have been willing to invest their money in an enterprise managed by a man who had twice been conspicuously proved to be an impostor—first in asserting that he had climbed Mt. McKinley, and next in maintaining that he had reached the north pole. But Dr. Cook was always an engaging person with a singularly plausible manner. It is understood that before he was finally exposed he made as much as $100,000 out of his fictitious trip to the pole.

THE British schooner Tomako, which has been called the "flagship" of the West Indian rum-running fleet, was captured by Coast Guard vessels off Seabright, N. J., some six miles from the shore. Almost $100,000 in money and two hundred cases of whiskey were seized by the enforcement officers. The capture would have been legal under the new treaty with Great Britain if the Senate had ratified it at that time; but it had not. The British government would therefore be within its legal rights if it protested the act of the Coast Guard vessels, but in the circumstances it is doubtful whether it will press the case. The enforcement officers assert that the Tomako had been in communication with the shore and was known to be sailing under defective and fraudulent papers.

IT is understood that the Treasury Department has asked the Director of the Budget to agree to an appropriation of ten million dollars for the use of the Prohibition Bureau in administering the Volstead and Harrison acts next year. Congress will also be asked to vote some twenty-eight million dollars for additions to the Coast Guard fleet and to its personnel, which are not now large enough to put a stop to the rum-running along the coast. Altogether it is estimated that the government will spend more than forty million dollars to enforce the laws against the use of liquor and narcotic drugs.—The Grand Jury in New York has indicted one Steinberg, who is accused of fraud and perjury in reporting his income, which he derived from distributing liquor through various "drug" companies. The District Attorney's office charges that there is evidence that Steinberg and his associates paid in to a former secretary in the office of a former Prohibition Commissioner at Washington $250,000 as bribes. Steinberg denies his guilt.

IF the plans of Mr. Ford's friends of the so-called People's Progressive party are carried out, he will be a candidate for the Presidency whether or not he gets the nomination from the Democratic or the Farmer-Labor party. The movement began at a conference in Omaha and the leaders called a second meeting to be held in Detroit. It is planned to nominate Mr. Ford on his own personality and to dispense with anything like a platform. The leaders of the new organization declare, however, that their aim is to "rescue the government from exploitation by the privileged classes."

A COMMITTEE of the Chinese Parliament has drafted a new constitution for the republic that has already been proclaimed. The constitution, it is said, is planned to break up the corrupt and iniquitous system of "provincial armies," through which the military *tuchuns* of the various provinces have reduced the central government to actual impotence. Article 34 definitely prohibits any province's maintaining a standing army and places the entire military force under the control of the national government at Pekin. The reform is an admirable one, or will be if the *tuchuns* pay any attention to it and if the constitution itself is actually accepted by the Chinese nation. The present government was forcibly established by the Chihli party, and its opponents are not likely to recognize it or any of its works. Incidentally, the dispatches report another battle between the armies of Sun Yat-sen, the leader of the southern party, and Gen. Chen Chiung-Ming, who represents the government at Pekin. Sun's forces are said to have been beaten; but it takes a Chinaman to understand the significance of the fighting or the results that are likely to come from it.

AFTER half-a-dozen German public men had either failed to form a cabinet or had refused to try, a gentleman named Marx has become Chancellor in place of Herr Stresemann. In spite of his name Herr Marx is not a Socialist; on the contrary he is a Clerical and therefore considered as "reactionary" in his politics. But he has managed to organize a Coalition cabinet that will not seriously antagonize the Socialists. No one expects him to hold office for long; the difficulties of his task are enough to discourage any politician. In his opening speech to the Reichstag he made it clear that nothing except united effort could preserve the tottering republic.

## THE BIRDS' THANK-YOU SONG

**By Gertrude R. Sullivan**

*I fed the birds in winter time*
*When days were cold and dreary.*
*I made for them a little house*
*All cozy, snug and cheery.*

*They paid me back in summer time.*
*When days grew bright and long*
*They sang their little throats right out*
*In one glad thank-you song.*

## MAGIC CHARMS

**By Elisabeth Stevens Mason**

ROSEMARY was going away for four whole days, all alone. "Mother isn't going, father isn't going, brother isn't going; all by myself!" Mother heard her crooning it to Rag Martha while Sally Doll sat by and listened.

Then all of a sudden it came to Rosemary what it might mean to be "all by myself." She wouldn't mind in the morning, because there would be Mary Elizabeth to play dollies with; and then she and Mary Elizabeth would take their naps together in the hammocks; and in the afternoons there would be splashing in the bay that came nearly to Mary Elizabeth's father's big camp. Going for a ride in Mary Elizabeth's father's big car would be fun too, and then there would be supper on the screened porch. But after that came the time when mother usually read to her and tucked her into her little white bed, and now mother wouldn't be there! Two big tears stole down Rosemary's cheeks, and a third ran down her little fat nose.

Mother glanced out at the silent little figure on the porch, guessed Rosemary's thoughts and smiled a tender little smile all to herself as she went upstairs for her hat.

"Come on, Rosebug," she called,—"Rosebug" was a little joke between mother and Rosemary; mother would say "Rosebug," and Rosemary would say "Rosebud, mother," and they would both laugh,—"shall we finish our shopping?"

Soon they were both in the store, and mother had four small bundles that Rosemary couldn't account for. "Secrets" said mother, "they are magic charms, and the charms will not work at the right time if we open them now."

## DECEMBER 31

**By Kate Lawrence**

*"It's the last time I'll run an errand,"*
*Said John,*
*"The last time I'll do a chore,*
*The last time I'll mail a letter,*
*The last time I'll go to the store.*

*"It's the last time I'll study a lesson,"*
*Said John.*
*"It's the last fond good-by, mother dear;*
*It's the very last time I shall see you;*
*That is, until sometime next year!"*

# How Does He Get Back?

*There are two things, dear Santa, I can't understand—*
*How you carry so much in your pack;*
*Then I see how you get down the chimney all right,*
*But I can't see just how you get back.*

The days flew by, and Rosemary was so excited over the magic packages packed away in her little case with her clothes and Rag Martha that she forgot all about the Alone Song that she had been singing. She watched mother tuck in four little white boxes and one "to grow on." Each was tied with a narrow colored ribbon. Mother said that the "one to grow on" had four kisses in it. Rosemary was to open it as soon as she reached Mary Elizabeth's house, and she might have one kiss each night before she went to bed. She might open one box, any one she chose, every night just after supper.

The day came at last. Mother hugged and kissed her, and father lifted her into the car beside Mr. Davis. Rosemary's lip began to tremble, but mother called, "Don't forget the magic, Rosebug."

Rosemary said "Rosebud, mother," before she thought, and then they both laughed. Mr. Davis started the car, and soon Rosemary was busy looking at the houses and stores as they flew by. The next minute she was on the train. Then it was time for mother's lunch box, and then for the big steamer. Next followed a long ride in a stage, and then a man rowed them to the island in a big rowboat, and there were Mary Elizabeth and Mary Elizabeth's mother waiting to drive them to the camp at the other end of the island.

What happy days followed! Hours on the rocks hunting for snails, paddling in the water and splashing with two blown-up wings at her shoulders, making doll's dresses on the porch, long rides to the ocean side of the island and modeling things in the wet sand. And at night the magic boxes!

The first night when Rosemary opened the "one to grow on" she found a case with photographs in it—father, mother and wee baby Wilbur. She hugged and kissed them all good night. Then came the first of the magic charms. There stood before her four boxes with perky bows, blue, red, pink and green. Which should she open tonight?

"I'll tell you," said Mary Elizabeth; "you shut your eyes while I change them round; then you choose."

"Oh, goody, that will be fun," cried Rosemary, and she put both hands over her eyes.

"All ready," said Mary Elizabeth, and out went Rosemary's hand to the pink bow; off went the cover, and there in a tiny tub just right for Rosemary's new doll house at home was a wee baby doll. Beside her in the tub was a card that read:

*Dear Rosebug, I'm your daughter;*
*So don't you think I ought to*
*Have a rub*
*In my tub*
*Every night in fresh warm water?*

Rosemary went to sleep that night with a smile turning up the corners of her mouth. The wee doll sat in her tub on a chair beside the bed.

Blue came the next night, and this time there was a yellow-haired china doll in a nightgown and kimona lying in a tiny bed all ready to be put into the bedroom of the doll's house. Pinned to the pillow was a card:

*I'm called, Roseybug, Marguerite;*
*Some have said that I look very sweet,*
*Others say 'Lazy Daisy!*
*Now isn't she crazy?*
*A kimona to wear on the street!'*

The next night the green-ribboned box held a tiny stove for the kitchen and a doll dressed as a cook, in cap and apron; under his arm was a small envelope and the note inside said:

*My name, Miss Marie, is Pierre;*
*I'll make you bread light as the air;*
*I'll cook in your house*
*As still as a mouse*
*And not charge you a cent while I'm there.*

How they laughed! And the next morning they made a house of pasteboard boxes, and Pierre had to cook all day for Marguerite and the baby.

The two girls ate their supper early that night and hurried to their room. When they opened the red box they found inside a fat little doll dressed as a nurse with two baby dolls in her arms. The nurse wore a red dress and a white apron, kerchief and cap; the two babies were in long clothes. On the apron was pinned this message:

*I'm Gretchen from far Germance,*
*Who will care for your twins, as you see,*
*For twins are my hobby;*
*These are Betty and Bobby,*
*And they'll cry if you take them from me.*

"O Mary Elizabeth," cried Rosemary the next morning as she climbed into the carriage ready to go, "I have had the best time!"

"So have I," said Mary Elizabeth, "and your magic boxes were the loveliest things of all. Why do you suppose your mother called them charms?"

Mrs. Davis smiled. "What is the time of day, Mary Elizabeth, when you want mother most?"

"Why, when I'm going to bed, mother," answered Mary Elizabeth.

"Oh, I see!" cried Rosemary, "they were charms to keep me from feeling lonesome for mother, weren't they? Well, I love my magic charms, but I'm glad I'm going to have my mother tonight."

## THE BREAD BOX

**By Lucy Chapman Updike**

SARAH had lived by the sea all the six years of her life. It was not a strange sight for her to see great ships sail out of the harbor, carrying passengers and cargoes to all parts of the world; but a desert would have looked very strange indeed to her.

One day Sarah's father told her that she was to take a trip. She and her mother were to go out to the West with him. They would be on the train three days. Sarah was delighted at the thought of taking the trip, but she wondered how she was going to sleep on a train. When she asked her father about it he just laughed and said, "Wait and see."

After a few days spent in packing and saying good-by to all her friends Sarah and her mother and father were comfortably settled in the long train, speeding across the country.

There was a funny black man on the train, who was dressed in a white suit, and who smiled and grinned at Sarah every time he went by. At night to her great astonishment he turned all the seats in the car into beds and hung curtains round them. Her father laughed and said, "See, the porter has made a bed for you. Isn't it a cozy place to sleep?"

Sarah thought it was lovely, and she became so excited over it that she could not go to sleep for a long time after her mother had tucked her in. Outside in the car she could hear her mother and her father talking.

"On the second day out we shall see the great bread box of the world," said her father.

Before Sarah went to sleep she wondered how big the box would be that could hold all the loaves of bread for the whole world. "Why, it would have to be very big—as big as—" she could not think for a minute. "Why, it would have to be bigger than a house."

She was much interested in all the wonderful things that she could see from the car window the next morning. On that day she began to watch for the bread box. But all that she could see was country and a few cities and little towns. Several times she saw cows grazing in pastures and red pigs sleeping in mud, and a great many telegraph poles. Then after a while she saw a tall, round building.

"O father, is that the box?" she asked.

Her father looked puzzled. "No, that is a silo where the farmer keeps fodder for his animals on the farm," answered her father.

Sarah was disappointed, for she had been almost sure that the silo was the bread box, but she kept on looking out of the window in hope that she would see it. Then on the second day the train went through fields of waving yellow grain that her father told her was wheat. There were miles and miles of it; as far as she could see. Then came a field where the wheat had been cut and left in big yellow hills almost as tall as Sarah's head. There were hundreds of them. Then she saw a big engine and near it a machine that was tall and red. There were many men working round the queer thing. Smoke came out of a pipe at the top of the engine, and the men threw bundles of grain into the machine, and from the end of it came a yellow stream of something going into bags. Near the machine was a big hill of straw as high as the engine. Over all was a cloud of dust, or it looked like dust to Sarah.

"O father! what is that queer thing? Is that the bread box?" she asked.

Her father did not seem to understand, and so she told him what she had heard him say. Then he laughed and said, "So you have been looking every day for the bread box of the world! It's right out the window."

Sarah looked quickly, but she did not see any box. It puzzled her.

"Sarah, all day long the train has been going by miles of wheat; that is what bread is made from," said her father. "Listen and I will tell you about it. The strange engine that we just passed is a threshing machine. It strips the kernels of wheat from the tall stalk on which the little grains of wheat grow. The big pile beside the engine is the straw or stems, and the yellow stream coming out from the end of the machine is the wheat going into bags. The bags are hauled to a train and sent to a mill where the little kernels of wheat are ground into flour. The flour, which is white like snow, is made into bread for all the people of the world. That is why this part of the United States is called the bread box of the world. If the farmers did not raise wheat, we should not have any bread, Sarah. The ships that you see at home sailing out of the harbor are carrying tons of this same wheat to all parts of the world, so that the little children in foreign countries and their mothers and fathers can make bread. It's just a wonderful make-believe bread box with the blue sky for a cover."

"Well," said Sarah with a laugh, "I wondered how you could get a box big enough to hold all the bread in the world. I'm glad to know what it is."

Then she fell asleep, for it was a long journey and she was tired, and when she woke up there was the funny black man again, hanging curtains up round her cozy little bed.


# The CHILDREN'S PAGE

## TAG

**By Eleanor Hammond**

*The Wind and the brown leaves play at tag*
*The livelong autumn day,*
*And, though the Wind is always "it,"*
*He seems to like to play!*

## BALLAD OF CHRIST ON THE WATER

*By Marion Couthouy Smith*

*Lord Christ came walking,*
*Walking on the sea;*
*All the little wind-swept waves*
*Leaping to his knee;*
*Lord Christ was beautiful*
*In his mastery.*

*Dim light of clouded stars*
*Showed Him tall and clear;*
*Hearts full of yearning dread*
*Failed as He drew near;*
*And above the wind and wave*
*Rose the cry of fear.*

*Low came the words He spoke,*
*Six words of grace;*
*"It is I; be not afraid!"*
*Then they saw his face.*
*Peter in the wild dark*
*Sprang across the space.*

*While the Lord's eyes held him*
*He was safe and light;*
*Till the marvel smote his soul*
*In his love's despite;*
*Looking to the dark sea,*
*Terror clasped him tight,*

*Dragged him down the sucking waves,*
*Tossed him all about;*
*"Save, Lord, I perish!"*
*The bitter cry rang out.*
*"Ah, child of little faith!*
*Wherefore didst thou doubt?"*

*Clinging to the strong hand*
*That had framed the spheres,*
*To the frail boat Peter came*
*All in shame and tears;*
*And his face was as the dead,*
*Who forget the years.*

*He who knew what was to come*
*Pitied his distress,*
*Sat among the awe-struck men,*
*Sweet to save and bless;*
*Lord Christ was beautiful*
*In his lowliness.*

*I would wait a thousand years,*
*Forfeiting delight,*
*Just to see the Lord Christ*
*Coming in the night*
*Through the dim and clouded stars,*
*Marvellously bright.*

*And the hand that framed the spheres*
*Would be stretched to me;*
*Oh, in all the radiant night*
*One face to see—*
*Lord Christ, beautiful*
*In his majesty!*

### THE SPARROW'S NEST

IT is often said that birds never learn, that one generation is no wiser than another. However that may be, here is an incident that proves the ingenuity of a pair of modern sparrows:

At the railway station in Sparta, Illinois, a Companion contributor writes, the two birds had built their nest on the signal tower where the arm joined the post. The agent was obliged to tear it down, but the sparrows rebuilt it. Again and again the man destroyed it, and again and again the birds rebuilt it, each time in the same place.

One morning as the agent was about to remove the nest once more he stopped in astonishment. The sparrows, evidently reasoning that the wind had been blowing their nest down, had found a long piece of twine and had wrapped it round and round the arm and the post, thus making a hollow, and in it they were once more building their nest.

As I thought about the incident I fell to pondering. Sometimes when in spite of our best efforts our plans fail to succeed perhaps it is the hand of Providence that has frustrated them. Perhaps God sees that it is best for us to fail. Perhaps we sometimes attempt the impossible—impossible because God has planned that things shall be otherwise.

### IN THE BREAST POCKET

THE home missionary's wife looked out at the swirling snow and sighed. There couldn't be much for Christmas this year. She sighed again. She hadn't had a real Christmas dinner since she had come west, and that was eight years ago.

"Tired, mother?" inquired a sweet little voice, and, turning, the missionary's wife looked into the sober eyes of little Betty.

"No, dear, not tired, just thinking," was the quick reply. "And that reminds me, I must mend father's coat. He has to attend a meeting in Merrivale tomorrow."

"Will he bring us anything?" asked little Betty wistfully.

"I'm afraid not, dear," the mother replied. "Father has no money for presents now."

She went into the little bare bedroom and from the closet took the only good coat that the missionary owned. He hadn't worn it since he had attended the convention in the fall. She smiled a little. What a rich spiritual feast that convention had been for him! And what a kind hostess he had had!

As the missionary's wife sat down and laid the coat across her lap she felt a paper crackle. She put her hand into the breast pocket and took out an envelope. "Father's left a letter in his coat," she remarked to Betty.

The envelope bore no address, and wonderingly she opened it and drew out a sheet of paper. Pinned to it were two ten-dollar bills and one five!

She stared. Then she read the few lines on the paper.

"My dear friend," the note began, "I am putting into this envelope twenty-five dollars. Your work has touched me profoundly, and I am giving you this small amount with joy and thankfulness that such people as you and your wife live, and I want to have a part in the work that you are doing. I want you to feel that we appreciate your self denials and sacrifices, and I want you to use the money for your own comfort. Your sincere friend, Mary L. Evans."

The missionary's wife sat there a little dazed. Mary L. Evans! Mrs. Evans had been her husband's hostess at the convention!

At that moment the missionary came into the room. She went to him with shining eyes and thrust the twenty-five dollars into his hand. "Dear heart!" she cried. "See what I've found in the breast pocket of your coat! You wore it at the convention, you remember? Read this."

The missionary took the sheet of paper and read it. Suddenly he put his arms round his wife. "Make out your list for a Christmas dinner, dear!" he said.

The missionary's wife did not answer, but in her heart were the words, "Thank God! Thank God!"

### A PLAGIARIST FOUND OUT

THE person who copies another's story that is in print and offers it for sale is a thief. He has taken something that does not belong to him. Happily the plagiarist, as such a person is called, usually has a hard time disposing of his stolen wares, and occasionally his deception comes to light in dramatic fashion. For example:

One October day, writes Mr. Augustus Thomas in the Print of My Remembrance, a young man brought to me a manuscript that he wished to sell. I promised to read it, although I told him that the Kansas City Mirror, on which I was employed, was not buying fiction. After a fortnight he came again, and I read the story as he sat there. I was prepossessed with what I thought was its easy introduction.

As I read on I said to myself, "If I had to state that case, that's the way I should like to write it." Another paragraph and I said, "Well, that's the way I did write it!"

I looked hurriedly through the script and asked the young man if he were the author of the story. He said he was. He was not large, and behind my desk were two compositors standing at their cases and another working on the stone. So I felt courageous enough to say to the young man, "You're a liar!"

He sprang to his feet with fine indignation. I repeated my characterization and added: "That story was printed on Sunday, May 1, 1887, in the New York World under the title, A Leavenworth Romance."

The fellow could only gasp an assent.

I said: "If you will go home to the paper from which you copied this, you'll find my initials, G. T., at the bottom of that story."

He said, "Yes," and went out, dazed at the mischance that had made him bring to an obscure person sitting in a Western office a yarn that he had copied verbatim from an Eastern daily—only to discover that he had placed the stolen article in the hands of its author! And there were ninety million other citizens in the United States!

### WHAT MAKES THE SUN HOT?

WHAT, asks Discovery, keeps our sun hot? Perhaps most people think of the sun in a vague kind of way as a gigantic bonfire that will in time turn into a vast celestial ash heap. That is, however, certainly not true, because the highest known temperature of combustion is about three thousand degrees, and the sun has a temperature of six thousand degrees; moreover, it has been calculated that no bonfire, even of the size of the sun, could give more than twenty-five hundred years of heat.

How many years the sun has been radiating heat energy is a difficult problem to solve; estimates are usually expressed in hundreds of millions. Some persons believe that showers of meteorites feed the sun. But if so there would be an increase in the mass of the sun and therefore an acceleration of the earth in its orbit and a shortened year. There are reasons also that make a theory of radioactivity as a source of sun energy inadmissible.

The theory that Lord Kelvin adopted, and what M. Alexandre Veronnet chooses as most plausible, was originally advanced by Helmholtz. His opinion was that the heat of the sun was the result of the energy of its gradual contraction. The deduction from that theory is that in one hundred thousand years the mean temperature of the earth will be five degrees lower. In a million years the temperature will be below zero and the whole earth will be frozen over. Imagination shrinks from picturing what the life of man in that eternal artic winter will be. It is a dismal picture! As we sit by a coal fire in winter or lie in the summer sun in these halcyon days of the gracious middle age of the sun perhaps we ought to be grateful that we have been born in what is probably the most bountiful and luxurious age the earth has known or ever will know.

There is, however, another theory of the heat of the sun, which M. Veronnet does not accept, but which English authorities prefer. They do not believe that the theory of contraction accounts for more than a five-hundredth part of the energy of the sun. The alternative theory is based on the supposition that elements are formed from hydrogen. If that is so, the mass of their atoms ought all to be exact multiples of the mass of the hydrogen atom. In point of fact their masses are in general a little less than the calculated figure. It is possible, using the arguments that Mr. Einstein first brought forward, to explain the energy of the sun by assuming that the extra mass has been turned into radiant energy. Such a theory postulates a far older sun and a much longer lease of life on its present scale than Helmholtz's theory of contraction.

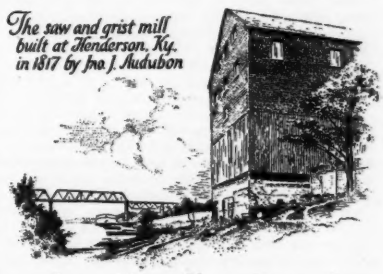
### AUDUBON'S MILL

AUDUBON, the famous naturalist, was no business man, though he tried hard to be one. Perhaps his worst enterprise, says a contributor, was his steam lumber and grist mill, which he started at Henderson, Kentucky, on the Ohio River, when he was in his thirties. In starting the mill, which cost $15,000—a large sum in those days—the naturalist had two partners, Thomas W. Bakewell, his brother-in-law, and Thomas W. Pears, a former clerk.

The building was forty-five feet by sixty-five, was four stories high and had a basement. The foundation walls were of broken stone and were four and a half feet thick. The weatherboarding was of yellow poplar, and the joists, many of which were more than a foot thick, were rough.

Trouble began at once. The demand for lumber and grain was limited; the machinery, much of which was of wood, did not work properly, and neither Audubon nor his partners knew how to run the mill. Moreover, there was much business depression after the War of 1812, and much that was owed them they could not collect. Finally Bakewell and Pears withdrew from the enterprise and left the whole burden on Audubon. As if that were not bad enough, the naturalist injured his right hand while repairing the machinery. In 1819, not quite two years after the mill was built, Audubon had to close it. He was arrested and imprisoned for debt.

For a time the building probably remained unoccupied. Later it was used as a tobacco stemmery, and then as a storehouse for leaf tobacco. At the end of ninety-six years it



*The saw and grist mill built at Henderson, Ky. in 1817 by Jno J. Audubon*

caught fire and burned to the ground on March 18, 1913.

In 1915, in accordance with the original lease, the site reverted to the City of Henderson, which is planning to convert the land together with near-by property along the river into a public park dedicated to Audubon.

### SPORT OF THE EAGLES

AS I was passing down a valley in southeastern Washington, writes a correspondent, I could see up on a mountain side two large eagles swooping at the back of a large tawny panther and stabbing him with their sharp talons. At first the big cat tried to outrun the birds, but they kept right along with him. Then he tried walking backward a few steps and then leaping up at the eagles, but they understood the trick and dodged him easily.

Presently one of the eagles lit on the ground and, half-crawling, half-walking, began flapping its wings as if it were hurt. The panther made a dive, but the bird evaded him, and he got another stab from the eagle in the air. Again the two eagles began their old game of darting down at his back every little while, and he seemed to realize that the best he could do was to make for shelter among some bushes half a mile away. But before he reached the place he frequently felt the sharp hind claws, which eagles use when fighting large enemies.

Had the fight occurred on the open plain, the panther doubtless would not have fared so well. As it was, the eagles had had fine sport at his expense. I think that no unarmed person could fight off a pair of eagles any more than the panther could.

How many eaglets that panther has devoured, how many kits those eagles have carried to their lofty perches on the mountain tops, we cannot tell. If only half the feuds and tragedies among the wild animals could be recorded, what interesting stories we should read! Some of the battles are fought for mere sport; some are fought to the death. I have watched deer and antelopes kill rattlesnakes. A deer will walk round the reptile a few times to get it to coil up; then the animal will step back a few feet and jump upon the coiled-up snake with all four of its sharp hoofs.

### "FIDDLING" FOR WORMS

ON a recent trip to Florida, writes a correspondent, I saw something that was new to me. I was stopping at my uncle's in Lynn Haven near St. Andrew Bay on the Gulf shore. While sitting on the piazza I had frequently noticed an old colored couple going past at about the same time every day; he always had a shingle and a heavy hard pine stick under his arm, and she carried a tin can. One day out of curiosity I inquired where they were going and what for.

"They are going to fiddle for worms," my uncle replied. "Come and see how it is done."

We walked a little way on the opposite side of the street and saw the old couple turn into a vacant field where the grass grew sparsely and in tufts. The old darkey drove the thin end of his shingle into the ground until it was firm; then he began to draw the heavy stick across the top of it, making a most unearthly noise: *Ka-roo-roo-up! Ka-roo-roo-up!* The noise grew worse as the old fellow warmed to his work.

Presently his wife began to walk in a circle round him, picking up something that she put into the can. We went over where they were, and, unbelievable as it may seem, she was picking up worms that apparently had come up out of the ground at the call of the "music." I measured one that was ten and a half inches long. No one there digs worms for bait; they all "fiddle" for them.

### SOCIABLE SCOT, EXCLUSIVE ENGLISHMAN

MANY are the stories that humorously illustrate the differing traits of the Englishman, the Scotchman and the Irishman. According to one story—which, however, relates to only two of the three nationalities—four separate wrecks had cast up four men on a lonely island of the South Seas. Two were Scotchmen, and two were Englishmen. After several years a passing American steamer hove to and took the four aboard. Sandy and Donald found their way to the skipper's cabin, and in telling of their experiences Sandy said:

"It would grieve you, mon, to see the Englishmen. Never a word did they speak to each other all the time they were there; they were not introduced."

"And how did you lads make out?" inquired the skipper.

"Aye, mon, the dee I found Donald on the beach we organized a Caledonian society, a golf club and a Preesbyteerian church."

### POOR BETTY!

THERE are many stories about the parsimony and niggardliness of Lord Eldon, a famous English judge of a century ago. Whether they do him injustice we do not know, but some of them are in their way amusing.

It is said that once when Lord Eldon was entertaining a few friends at dinner in a tavern he dropped a guinea on the floor when about to pay the bill. As he couldn't find the piece, he said to Betty, the waitress, "Betty, I have dropped two guineas on the floor and can't find them. See if you can help me."

Betty went to work and quickly found the lost guinea.

Lord Eldon slipped it into his pocket.

"Thank you, Betty," he said. "When you find the other guinea keep it for your trouble."

### AN ANCIENT THOUGH NOT HONORABLE PROFESSION

THE diner, says Punch, having finished his meal and called for the bill, studied it with care and apparent disapproval. "Do you make any reduction to those in the same line of business?" he asked the waiter.

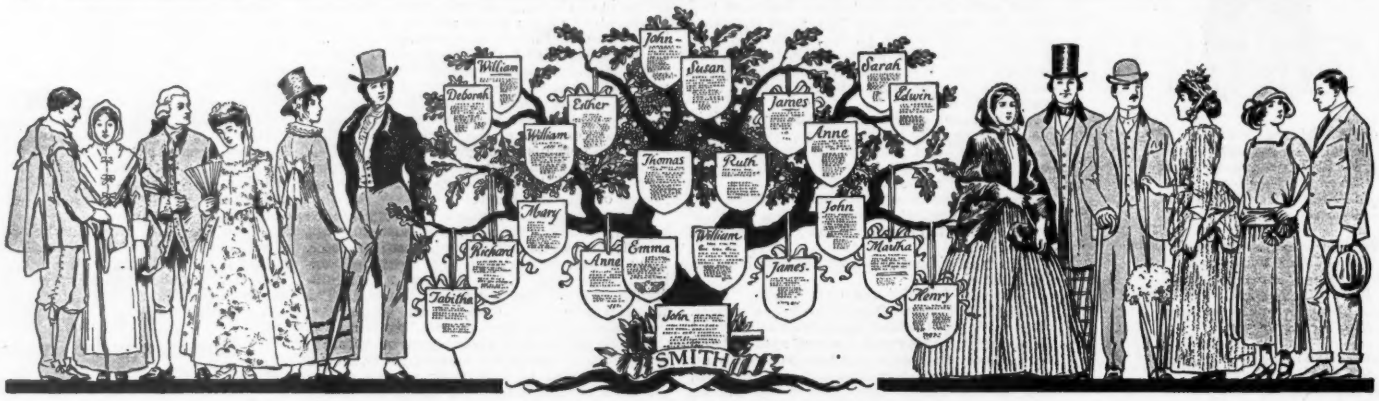
"Certainly," was the reply. "Are you a restaurant proprietor?"

"No," said the diner sourly, "I'm a robber."

Ask any questions you wish about the contents of this page. They will be gladly answered.

# The FAMILY PAGE

Address your letters to THE EDITOR OF THE FAMILY PAGE, THE YOUTH'S COMPANION, BOSTON, MASS.




## THE ANCESTRAL TREE

FROM a genealogical point of view it is lamentable that most persons know little or nothing of their lineage farther back than their grandparents or great-grandparents and furthermore are generally unfamiliar with the dates of birth, marriage and death of even their immediate forbears. Many would like to know more about the history of their ancestry and perhaps have a natural taste for the subject, but the past seems to them like a solid, impenetrable wall, containing neither gates nor loopholes to give a more enlightened view of an interesting background. The task is, however, really not so difficult as it seems. Genealogy, or the science of identifying ancestry, has opened many a pleasant gate of family relationship.

In the ancestral tree we have the trunk, which divides into two great limbs. Then each one of those limbs subdivides into two large branches, and each one of the branches again divides in turn, and so on and on, until if you were to stop at the tenth generation and there were no missing branches, there would finally be a symmetrical and compact mass of foliage. The trunk represents the individual whose ancestry is to be traced; the two great branches represent the father and the mother; and the large branches from each of those limbs stand for the four grandparents, two on the father's side and two on the mother's. The next division of branches indicates the eight great-grandparents, four being paternal and four maternal. And so the separating process goes on; each new division doubles outward to represent the number of grandparents of a given degree for that generation.

### THE LINE OF GRANDPARENTS

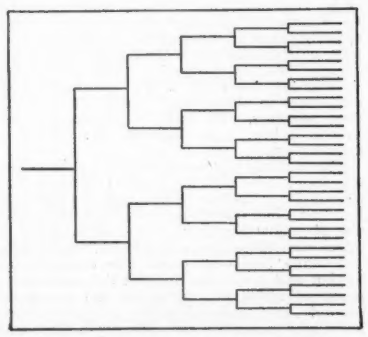
This doubling of direct ancestors in each generation, as we trace backward, causes us to arrive at results that are astonishing. A young boy or girl of 1923 is about ten generations removed from those who came from England between 1620 and 1640. Going back, then, for ten generations you will find one thousand and twenty-four grandparents, all with eight "greats" prefixed. In point of fact, however, the element of intermarriage usually reduces the number of different ancestors at the tenth generation that a mathematical table would indicate, and also the number of different family surnames, for it is often possible—in fact it is usual within ten generations—to trace back to the same direct ancestor on both the paternal and the maternal side. But, if one is tabulating his ancestors for ten generations back he must provide spaces for the whole two thousand and forty-six, including the one thousand and twenty-four at the tenth generation, even though names and individuals are found to be duplicated in the tabulation.

Alfred the Great became King of England in 871 A.D., and, allowing forty years to a generation, which is much too long a time, every man and woman in America is twenty-six generations removed from Alfred the Great's time. If we double each of those generations twenty-six times, we find that every one now living had more than 38,700,000 ancestors in 871 A.D., and doubling back one generation more gives some 77,000,000; and so on until before long the figures would exceed the entire present population of the earth.

It all means only that every one of English descent is descended thousands of times from each one of thousands of Englishmen and women of the ninth century.

When a person begins in earnest to delve into his family history he rarely lets go for a long time, for there is a certain fascination about the study, as one discovery leads to another, which creates an ever-increasing interest and desire to acquire new names and dates to accompany and augment the material already gained. Many families cherish traditions that vary in patriotic devotion and charming romance; one ancestor landed and settled at a certain place during a certain year, another fought in King Philip's War, another was in Arnold's expedition to Quebec, and so on. How interesting it is, then, to find actual proof of the facts in documents of authority!

To a person who is interested, but who neither knows how to begin his researches nor



*A loose leaf page for a genealogy on which are lines for the names of ancestors for five generations*

desires to engage the services of another to begin it for him, a few practical hints may be of value. Of course it must be understood that anything like a full fruiting of the ancestral tree requires years of patient labor and research. To begin with, the student should adopt some form of pedigree or ancestral chart as a graphic means of showing at sight the past generations in their true relations. All sorts of forms have been designed for the purpose, some in the form of a tree, some consisting of a semicircle intersected by radial lines that give the general effect of a wide-open fan, and so on. About the simplest and most practical form is the continuous charts that consist of separate sheets easily adapted to a loose-leaf binder.

A person who desires to use that kind of record starts with himself and fills in on the sheet under his name his date of birth, then in and under the next two spaces to the right the name of his father and the maiden name of his mother, with the respective dates of their birth, marriage and death. Next, to the right, he fills in the names of his father's father, father's mother, mother's father and mother's mother with the necessary data, following with his paternal grandfather's father and mother and his paternal grandmother's father and mother, together with his maternal grandfather's father and mother and his maternal grandmother's father and mother, doubling in each generation indefinitely as he goes backward into the past.

### A CONVENIENT RECORD

Sheets fifteen by twenty inches will be found of proper size. On the first sheet the seeker's own name will appear at the extreme left, just halfway down the page, and at the extreme right the names of his thirty-two great-great-great-grandparents in the fifth generation back.

Then thirty-two sheets can be provided and ruled, each sheet beginning anew at the extreme left with the name of a great-great-great-grandparent and devoted to the five generations behind that person.

The thirty-three sheets will provide ample space for all of the two thousand and forty-six ancestors back to and including the tenth generation.

On sheets of the same size as the chart, under each surname or separate family section, write the dates of birth, death and marriage, the names of children and places of residence and other notes of interest concerning the ancestors. The names and vital records alone of one's ancestors, though of interest, tell but little of their life stories.

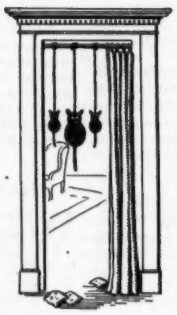
Filling in the blanks with data and the satisfaction of being able to complete at least some of them give zest to the family puzzle; but you must not expect to fill them all in, for that would take years, and even then many dates and names and much data would remain undiscovered. The chance of obtaining accidentally in some way and at some time a clue that will finally establish a new ancestor is what prevents the interest in genealogy from ever flagging.

### HOW TO GET INFORMATION

There are many ways of penetrating the blank wall that seems to confront the amateur at the outset. The Scriptural saying that "none of us liveth or dieth to himself" is true, genealogically speaking, for nearly everybody's ancestors can be more or less fully traced back for many generations. The dates and other data necessary to complete the record for parents and both paternal and maternal grandparents can usually be obtained from sources near at hand, such as the memory of those now living, records in the family Bible and records on tombstones.

As you go farther back the difficulties will of course increase, but by using the methods suggested, in conjunction with correspondence with relatives and others, you will constantly be getting new light on the subject. Nor do those efforts by any means exhaust the resources; they only begin to open up the avenues of documentary evidence.

The genealogist derives information from all manner of different sources. Among the first is that of town vital records. The vital records of many towns, especially in New England, have been published by the state. Other towns have printed the records at their own expense, and still other towns keep the records in manuscript among their archives. A copy of every vital record on any town clerk's book in New Hampshire and Vermont is on file at the state capitol, and a letter to the Registrar of Vital Statistics at Concord or to the Secretary of State at Montpelier will give you any available information to be found on town records of the one or the other of those two states. Nearly all the vital records of Rhode Island have been printed, down to some fifty years ago, and perhaps half those of Massachusetts have been published. A person who wishes to know whether the records of any particular town have been published can easily find out by addressing the town clerk of that town. Other means of obtaining genealogical information are church, probate and land records, and they are usually unimpeachable. Scores of town histories contain much interesting and valuable information in this field, and family genealogies of hundreds of New England families furnish mines of material. Any public library that contains a well-equipped genealogical department is a rich source of information for one who is interested in this kind of research.



A person who had early Puritan or Pilgrim ancestry can find much of value in such reference works as Mayflower Descendants, Pope's Pioneers of Massachusetts and Savage's Genealogical Dictionary. The voluminous New England Historical and Genealogical Register contains a mass of information in the form of family genealogies, copies of town and cemetery records, abstracts of wills, and so forth.

The foregoing outline has dealt mainly with the graphic presentation of the ancestral tree in tracing direct ancestry—that is, grandfathers and grandmothers of a more or less remote degree; but some persons take a greater interest in simply taking their own family name and tracing a genealogy of that name alone, to include only the direct line and those of the name that are connected with it. Mr. Jones may, however, forget or never think of the fact that he has in him as much blood of some Robinson who came to these shores ten generations ago and of whom he never heard as he has of his first Jones ancestor who set foot on this soil.

## RE-TUFTING A MATTRESS

BUY a long mattress needle, a strong quality of brown cord and a package of tufts. Cut a long length of cord and thread the needle with it; then snip off one of the old, worn tufts and push the needle in at the point where that lay. Pull the cord through until a good length of it projects on the under side; then turn the needle and bring it back at a point only about an eighth of an inch away from the first hole. Before you draw the cord tight lay a cotton tuft under the loop on the under side. Then as you pull on the two free ends of the cord the tuft will be caught through the middle and pressed up into the mattress body. Lay a second tuft between the free ends of the upper side and knot them over it after pulling as hard as you can. Everything depends on having the cord so tight that the mattress shows a deep depression in which the tuft is placed. Some people do not cut the cord from the ball at all, but merely thread the free end to the needle so that when they pull the cord tight, they can have the advantage of a firm grip on the long end. Make the knot a square one, so that it cannot possibly slip.

## OWL-KAT—THE GAME FOR ALL THE FAMILY

THE necessary equipment consists of three "owl-kats," one of them larger than the other two, made from the tops of old stockings, stuffed with floss or straw, and with faces in outline stitch and shoe buttons or tin trousers buttons for eyes, and three bean bags, with faces outlined on them. To each owl-kat is sewed a tape a yard long, by which it can be hung right side up from a portière pole or the lintel of a door. The large one should be in the centre. Sew the tapes on firmly.

Tie the owl-kats by their tapes to tacks put into the lintel of a door between two rooms, so that they are about six inches apart. All should be equally distant from the floor, and the higher they are hung the greater will be the test of skill in hitting them.

The sides line up in opposite rooms as far away from each other as possible, and each the same distance from the owl-kats, but the younger players should stand somewhat nearer than their elders stand.

The first player of the first team throws the three bean bags in the attempt to hit the large owl-kat and miss the two small ones. The first player of the second team tries to catch them after they have passed the owl-kats; then he in turn throws them back, and player number two of the first team tries to catch them; and so on. Thirty points count as a game, and the scoring is as follows:

5 points for hitting the large owl-kat.
2 points forfeited for hitting either small one.
1 point each for catching the bags.

Players must stand in line, except that the one who catches may move as is necessary. Players may not wait until the owl-kats are through swinging, but must follow the first shot immediately with the next two shots.

Ask any questions you wish about the contents of this page. They will be gladly answered.

# The GIRLS' PAGE

Address your letters to THE EDITOR OF THE GIRLS' PAGE, THE YOUTH'S COMPANION, BOSTON, MASS.

## ETCHING

*Part One. The Tools*

ETCHING is a fine art indeed, and one capable of endless development. It does not deal with color in the ordinary sense, but with beauty of form, line and mass. Bare trees and the winter landscape, quaint buildings and views of the sea shore are suitable subjects for simple etchings. In the hands of a master etching as a medium for drawing is virtually inexhaustible. Whistler chose for some of his famous etchings the curious crooked buildings that line the Thames or the canals of Venice; Rembrandt etched the low-lying Dutch landscape, portraits, interesting character studies and beautiful scenes from the life of Christ; Seymour Haden loved nature subjects, and that strange genius Charles Méryon drew the ancient buildings of Paris and weird monsters of his imagination. The variations of light and shade and the elusive quality of line, coupled with the "chance effects" the etcher gets by using the many fascinating materials, give the art a most delicate quality.

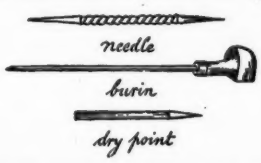
*An etching by a master of the art—Rembrandt*

To the beginner etching may seem complicated, but it is really simple and inexpensive; all the necessary articles should not cost more than seven dollars, and some will be found already in the house. Knowing how to use chemicals is useful but not indispensable.

If you wish first to experiment with the process before going too deeply into the undertaking, you will do well to work in dry point. That method does not require waxing or biting with acid. You simply engrave your subject directly on the copper, with a stylus or dry point, and then ink it and print.

To equip yourself for etching choose a room that will make a convenient little studio, with light from the left, and gather the following materials for your work.

*The Plate.* Etching is done first on copper or zinc and then printed on paper. The sheets of metal are called the 'plates.' Copper, because of its greater toughness, is generally preferred. Steel plates are sometimes used, but their extreme hardness unsuits them for detailed drawing. Zinc plates are the least expensive and are entirely suitable for amateur work. Keep the




plates well wrapped up so that they will not become marred or tarnished by exposure to the air.

*The Etching Ground.* This is a waxlike substance that is applied to the plate to prevent corrosion by the acid. The easiest and best receipt for the ground is this:

COMPARATIVE TABLE
(*parts by weight*)

| Wax (pure white) | Asphaltum | Gum mastic (pure) |
|---|---|---|
| 1 | 1½ | 3 |

These materials can be procured at any drug store; and you can make enough of the mixture in a short time to last you a number of years.

To make the ground use a glazed earthenware or iron kettle. Put it over a slow fire and melt the wax first. Powder the gum mastic well, add it gradually to the wax and stir it slowly with a glass rod until it is completely dissolved. Add the powdered asphaltum in the same way. Increase the heat, but be careful not to burn the ground. Stir the mass occasionally with a glass rod and exercise great caution, because the compound in the kettle is very inflammable. Maintain the heat for two or three hours, at the end of which time pour the hot ground into a pail of lukewarm water. It will not be long before you will be able to knead the mass under the water; in a few minutes you can take it out and pull it as you pull molasses candy. The pulling is necessary to mix it more thoroughly. When the newly-made ground becomes fairly hard break off chunks, mould them into balls weighing approximately four ounces and wrap each one firmly in silk; then gather the silk and tie it. The silk covering is to act as a strainer and cover. The ground will melt and flow through the meshes of the silk when it is applied to the drawing surface of the heated plate.

Balls of prepared ground can be bought for a small price, and, since making the ground is dangerous, it is on the whole better to buy it.

*Mordants.* The mordant is the acid used to bite the lines in the etched plate. The Dutch mordant is supposed to be the best and consists of the following ingredients:

| | |
|---|---|
| Hydrochloric acid (C.P.) | 5 ounces |
| Chlorate of potash | 1 ounce |
| Water | 44 ounces |

Put the chlorate of potash and the water into a bottle with a glass stopper and leave them until the chlorate is fully dissolved. Then add the acid and shake the bottle well. To make the acid attack the copper more readily drop in a small piece of copper about half the size of a penny and let it dissolve. Watching the acid work on the plate immersed in it is one of the greatest pleasures in etching. Nitric acid, diluted with almost equal parts of water, will do the work of biting the lines very well.

*The Needle.* This is the point with which you make your drawing. If you draw carefully with it, you will find that it will remove the wax from the surface of the copper in sharp, clean lines.

Steel etching needles can be purchased at the art stores and are the most satisfactory thing for a beginner to use; but any pointed instrument will serve the purpose if properly sharpened. J. M. W. Turner used a prong of an old steel fork. Hatpins or orange sticks are sometimes used, or a bent sharpened nail fitted into a wooden handle; experiment will show you which needle suits your hand best.

*Dry Points.* With these points you work directly upon the copper without its being waxed. All art stores carry them, and you should have one of the flat kind and one of the round. The flat points, sharpened on each side, should have slightly convex, keen cutting edges, with rounded corners. See to it that your points are always sharp, because a dull point will be a continual irritation to you.

*Stopping-out Varnish.* This substance is used to cover up the parts of the bitten plate that you wish to protect from further action by the acid. It can be obtained of any dealer in paints and varnishes. A stopping-out varnish that will serve the purpose quite as well as any can be made by dissolving shellac in alcohol. It should be a little thinner than honey.

*Dabbers.* The dabber is used to spread the ground uniformly over the plate. To make a dabber take a circular piece of cardboard about


four inches in diameter; wad up a handful of well-separated horsehair in a piece of woolen cloth and shape it evenly over one side of the disk. Over it stretch a piece of taffeta large enough to permit its being gathered on the other side of the pasteboard. Draw it tightly together from all points and at the same time shape the mass with your fingers until it is quite firm. Then tie a strong string round the gathering so as to make a handle of the loose ends of the taffeta. After the dabbers have been used they should be cleaned with turpentine.

*Rollers.* These are used for grounding plates and for rolling in the ink. They are made of rubber and are about two inches wide. If the rubber becomes hard, get a new roller or else have the hard surface removed. An ink ball can be used instead of the roller. Clean rollers and balls with turpentine as you cleaned the dabbers.

*The Hand Vise.* This is used as a handle for the hot plate, but a pair of pincers will serve the purpose.

*Drawing Boards.* For pressing and dyeing paper and proofs you will need two or three drawing boards, planed perfectly smooth.

*Trays.* Get any sort of tray that will hold the acid or water.

*Bunsen Burner.* This will be used for various purposes, but a gas stove will suffice, even though it is less convenient.

*The Burin, or Engraver.* This tool is used to deepen the lines on the etched plate and to correct places where the acid has not worked properly.

*The Press.* If you have the time and the ambition to take up etching seriously, you will want to do your own printing. The beginner may find an old-fashioned letter-copy press, which serves very well. A small vertical-screw cider press might be adapted. What is needed is a machine that will give the plate and paper a powerful squeeze.

*Blankets.* If you use a regular press, put blankets between the plate and the platen to relieve the pressure. The local printer will tell you where to get them.

*Ink.* The inks used by printers of engravings, known as 'copper plate ink,' will be what you want. They are sold by ink houses or at art supply stores.

*Paper.* The kind that is generally used is the handmade Japanese fibre paper. Hand-made rag paper and even domestic machine-made rag paper are quite suitable. Keep the paper flat and well wrapped up.


As you progress in etching you may find that you need a few other sundries, but they are so unimportant that it would not be worth while to mention them here.

It has been necessary in this article to describe the tools used. The article next month will be devoted to the method of making an etching. You will find this very interesting because it will show the way to success and the causes of failure. Anyone who has the creative artistic nature should know something of etching. It has many charms and is a continual and growing pleasure.

### INFORMATION INCOME

MANY a girl who must stay at home could earn money, as one contributor does, by selling information about school matters to students and parents. She charges one dollar for an afternoon or an evening, from 1.30 to 5.30 P. M. or from 6.30 to 10.30 P. M.

Students who consult her are privileged to ask questions freely about entrance requirements and examinations, the use of a library, expenses, the loan funds and scholarships of different colleges, the kinds and amount of clothing necessary, the chance of getting employment during college and after graduation, the value of the different courses offered in different colleges, the value and the drawbacks of fraternities and sororities, the curricula, the customs and the pitfalls of all the colleges. Every question, however unimportant, received courteous consideration. The woman keeps the latest catalogues of denominational and private schools as well as of the colleges and furnishes them to students who are interested. Moreover, she holds herself ready to direct students in their search for material for programmes and in preparing debates or brief talks.

### A REVIEW OF THE YEAR

A NEW YEAR'S party that is also a birthday party will pass the time very well until midnight strikes and the New Year begins its reign.

The guests should be divided according to the months in which they were born. The January group holds a snowball fight with small cotton puffs or feathers blown by the breath from one side to the other. The object of each side is to keep the puff from landing on any person on its own side, and the group that lands it on the other side is declared to be the winner and receives a calendar for a prize.

The February group writes valentine limericks, sings patriotic songs or engages in a contest to determine who can tell the most ingenious story. The most accomplished receives a toy hatchet.

Those born in March engage in a potato-rolling contest. Using a toothpick, each player tries to get his potato to the goal first, and the winner receives a quart of potatoes, daintily wrapped in tissue paper and ribbon and packed in a fancy box. Another game for those born in March is "first catch your hare." Each of the party is blindfolded in turn and told to catch as many of the others as possible in two minutes. The person with the greatest number of "hares" to his credit receives a toy rabbit.

The April company, of course, is expected to play practical jokes on the rest of the guests or to tell good jokes on one another, and the prize is a box of April-fool candy.

For May a mothers' day "experience meeting" is called. Some of the mothers present are asked to come forward and tell the secret of raising the paragons of children that the speaker describes at great length. Others are asked to explain certain faults of character (as noted by the speaker) in their children. The faults of course are merely good-natured inventions of members of the company. The "mother" who is voted to have the most successful system receives a neat little whip as a souvenir.

June—the month of graduations—calls for a mock commencement. The members of the group give impromptu orations and essays, or one person takes the part of a college president and confers amusing honorary degrees.

The July group holds an indoor picnic and thus introduces the refreshments, which are packed in little baskets and boxes. A kettle of red lemonade is served from paper cups. A Fourth of July oration puts the finishing touch to this stunt. It is in sections, one of which each member of the group supplies, by taking up the train of thought where the last speaker left it.


August being the favorite vacation month, a "see America first" trip is conducted by means of charades that name various cities and places of interest. The prize is a miniature suitcase.

The Septemberites have a spelling match, in which the guests are divided into two sides. Slips of paper are passed round, each one of which bears a single large letter. Each side is required to form the word thus assigned to it by arranging themselves in the proper order with their letters. The side that does it first wins a set of letter blocks.

October provides a mental "nutting party." Conundrums, inclosed in English walnut shells, are hidden in various parts of the house. A nut pick rewards the one who finds and "cracks" the most nuts.

November furnishes a football game, played with a small rubber ball. The winner earns a large turkey feather for his cap.

The festivities close with the Christmas tree—a clothes tree decked out with leaves and the usual ornaments and with inexpensive favors and joke presents tied to the limbs. Old Father Time distributes the gifts and ushers in the New Year with the singing of Auld Lang Syne.

### THE SACK STUNT

AS the guests arrive let each one of them slip his right hand into a two-pound paper bag. Tie the bag round his wrist with cord and let him shake hands with the other guests until the bag is worn out.

Ask any questions you wish about the contents of this page. They will be gladly answered.

# The BOYS' PAGE

Address your letters to THE EDITOR OF THE BOYS' PAGE, THE YOUTH'S COMPANION, BOSTON, MASS.

## THE HIGH SCHOOL PERIODICAL

*I. The Board*

IT is not always easy for the newly-appointed editor of a high school periodical to find out how things should be done before he actually has to do them. That is particularly the case if the school has never published a paper before, or if the former editors of an existing publication have been graduated. A series of four articles, of which this is the first, has been prepared by The Youth's Companion in order to supply editors and organizers both of new and of established high-school periodicals with a definite, practical working programme.

In this article we shall consider how the board of editors should be appointed and organized; the subsequent articles will take up the actual work of the board, review the mechanical details of publication and discuss the merits of numerous departments that have long found favor with student editors.

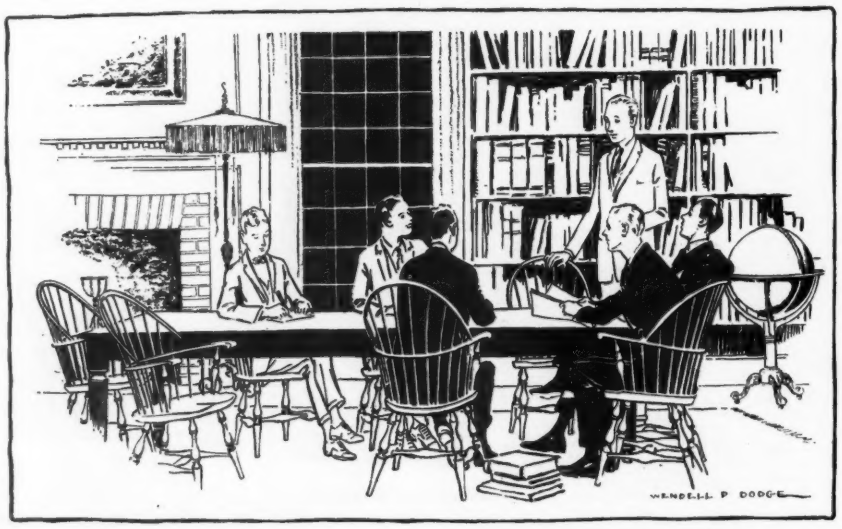
If a new paper is to be started, the editor in chief should be chosen several months before the first issue of the paper is expected to appear, so that he shall have ample time to make his plans. If the editor is merely to carry on the work of an existing editorial board, he should be selected in the May or June preceding his year of office, so that he can learn something of the work from those who are doing it.

In some schools the principal, the headmaster of the English department or the faculty as a body chooses the editor in chief and the assistant editors from among the best students, taking care to give places only to those who are anxious to have them. In other schools the faculty nominates the best students, and the senior class elects the board from among them. A more modern way is to have the retiring editor or board appoint the new editors from among the candidates who have worked for the paper during the year. Still another way is for the retiring editors to select as their successors the most active of the voluntary contributors. The senior class may, however, prefer to make the offices elective, nominating candidates by committee or from the floor of the class meeting, and making the final choice by a rising vote, or it may delegate the entire task of selecting the editors to the student council, which, of course, coöperates with the faculty.

Whatever the method of choice, the results are usually better if only the editor in chief and the business manager are named by the appointing body. The two persons selected are then free to draft others who will work well with them or with whom they can work well. Of course it is inevitable that the editor will select his assistants from among persons whom he likes, but, if he is himself worthy of the appointment, he will not appoint incompetent persons merely out of friendship.

A board of three editors and three managers, including the editor in chief and the business manager, is usually more efficient than a larger one. The chiefs can readily watch the work of a few persons, and the associates themselves will feel their responsibility more keenly if they really have an appreciable amount of work to do. It is true that many persons work best under pressure; that is, of course, if the pressure be not too great. The editor in chief may retain for himself the task of "making up" the paper—that is, deciding what material shall be used in a given issue and arranging it—and of editing and correcting the copy and assigning the gathering of literary matter to one assistant and of news matter to the other. If he has more assistants, he may give a particular department say, School News, Poetry, Exchanges or Sports to each. If there is a student council, it should if possible be represented on the board. The business manager can hardly divide his work in so definite a way though he may find it practicable to assign to one person the job of looking up a printer, to another that of obtaining subscriptions and to a third, the most arduous task of all, gathering advertisements. Every member of the board, whether he is an editorial or a business worker, should be familiar with the business end of the paper. Editors as well as business managers should solicit some subscriptions and advertisements. The attempt, if it does nothing else, will familiarize them with the fact that a well-conducted magazine is, after all, a business enterprise.

Some member of the school faculty should be appointed adviser and censor, not only because the board must print nothing to which the faculty can reasonably object, but because such an adviser can be of great help to the editors. A teacher who has himself edited a school or college paper is obviously valuable, for he can give practical advice about the mechanical details of publication, and his experienced eye will readily mark any small errors in printing that may have escaped the eyes of the student editors. A teacher of English will know the best writers in the school; he can both encourage such persons to write for the paper and put the editors in touch with them. But the editor should not depend too largely on the adviser for new ideas; he should weigh well any suggestions or objections that the adviser may offer, but he must not permit him to dictate the policy of the paper.




*The magazine should be the work, not of one editor, but of the whole board*

## BASKETBALL

*Playing Your Position*

EACH of the three positions in basketball, like each of the three shots described on the Boys' Page for November, requires skill and knowledge of a special kind. If you are a forward, you will need to know and be able to do certain things that you would not necessarily need to know if you were a guard or a centre, and vice versa. Nevertheless, the player who knows all the "little tricks" of the two other positions is by so much the more useful to his team. Therefore while practicing your own position don't entirely neglect the others. You cannot know too much.

### THE FORWARD

A forward must realize that he is playing a position that requires much shooting for the basket, much handling of the ball, evading the opposing guard and a great deal of running round the floor. To do all those things successfully—that is, without having first to "stop and think"—requires much fundamental drilling.

The first thing a forward should do at the start of a season is to get the "feel of the ball." In other words, a basketball is rather an awkward thing to handle cleanly; to be able to catch it, pass it from hand to hand and throw it either with one hand or with two hands requires that a player become so used to the touch of the ball that handling it becomes second nature to him. Consequently do this: take a ball and throw it into the air; catch it; bounce it; dribble it; throw it with one hand and with two hands. Practice day after day until you do all those things with confidence and ease.

The next step is to take the ball and by yourself shoot for the basket. Shoot from all angles and at distances from right beneath the basket to thirty feet away from it. If you have the patience and do a certain amount of this day after day, it will not be long before your shots will be dropping into the basket an astonishing number of times, and that means that your eye is improving.

Next, train your wind; you must have wind to last a game at full speed. A forward who becomes winded quickly is not in a condition to help his team much, and just as in football a mediocre well man is better than a crippled star so in basketball a man who can go at full speed all the time is the man to play the position. Again, quick starting is an essential in forward playing, and so is the ability to dodge, duck and stop instantly. Do this: At the beginning of the season start running slowly a quarter of a mile before and after practice. Gradually increase that distance to half a mile until you can run the final two or three laps at top speed and still feel able to run two more at the same speed. Then practice running fast down the floor and endeavoring to stop instantly. The effort will make you capable of stopping instantly, receiving a pass and either shooting or passing again with ease. And for a final practice stunt place a number of obstacles in a line down the floor—any gymnastic apparatus will do—and learn to dodge round them while running at full speed.

There is one thing, however, that cannot be emphasized too strongly to those who wish to play the position of forward. Do not waste speed and wind by aimless dashes over the floor. An experienced guard will let a certain kind of forward run himself out and yet guard him with the greatest ease.

### THE GUARD

First and most important of all the duty of a guard is precisely what the word implies—to guard the opposing forward and by every legitimate means prevent him from scoring baskets. To do it the guard must be fast, for a slow guard will be always just enough behind to allow the man he is supposed to cover a number of easy shots. Secondly, a guard must be mentally alert. Being on the defensive, he must try to divine instantly the various tactics of his opponents and strive to break up the different offensive formations they will endeavor to start. The guard is under a handicap from the beginning inasmuch as the forward has the initiative; the guard must try to anticipate and outwit his opponent. The ability to do that can be acquired only through experience and practice, and for a long time a new guard will apparently be helpless to prevent his forward from scoring. Gradually, however, by watching the situation of the ball on the floor and by recognizing the style of play that his opponent uses a guard's mind will automatically divine the play to be tried and anticipate it. By being on his toes all the time and not allowing his forward a chance to make easy shots, a guard exerts a psychological effect that keeps his opponent nervous and lacking in confidence.

However, a guard has to do something else besides keeping his man from scoring. He has to fit in as a cog in his own team's offensive tactics, and frequently, when a guard possesses unusual shooting ability, he gets the opportunity of shooting for the basket himself. The guard who can make the shot successfully and at the same time keep a close watch on his opposing forward's movements is a guard of unusual ability. It is quite possible for a guard to be the most valuable player in his team.

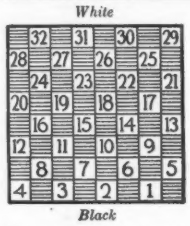
If a guard should be signalled as the man to start an offensive play, immediately after having received the tip-off from his centre and having made his pass or dribble he should run to cover his forward again. A forward left entirely loose will in any game make within a short time a number of easy shots. If the guard's play is to shoot after securing the tip-off, he should as a general rule follow up his shot. He has the best chance to recover the ball even if he is not able to make a second shot. Frequently a guard instead of receiving the tip-off takes a pass from a forward who has obtained the ball from the centre. In this case also the guard passes, dribbles or shoots and then immediately covers his man.

### THE CENTRE

In the first place do not attempt to play a centre's position unless you are of average height or taller. A short man can play the position of forward or guard and become a star, but he cannot do it at centre. The reason for that is plain. Almost every team wants to get possession of the ball at the tip-off. No matter how a short man can jump, the tall man will

## THE GAME OF CHECKERS

*More Stroke Problems*



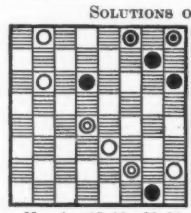

*Reference board, showing how the squares are numbered.*

IN the study of problems, whether they are stroke problems or actual endings of games, lies the greatest pleasure that the game of checkers affords. Solving problems also takes first place in the education of a player. Learning the openings comes second. It is for that reason that these stroke problems are offered.

To get the most from the problems do them without referring to the solutions. If you wish to compare your own solutions with the correct ones write down each play as you make it. If you have a written record you will not have to play the problems over every time you go astray.

It is often worth while to try to do each problem within a specified time. When you can do any of the problems in a given time you can have great fun by placing the problem on the board and inviting your friends to try to do it as quickly as you did it.

SOLUTIONS OF POSITIONS



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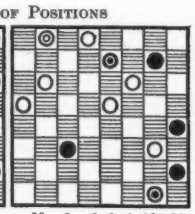
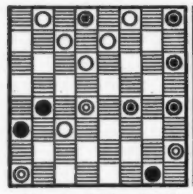
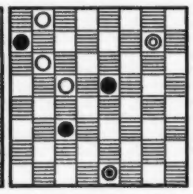


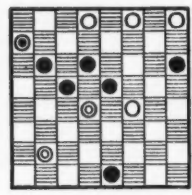
No. 2.—9–6, 1–10, 31–27, 26–17, 20–16, 11–20, 27–23, 20–27, 18–15, 10–26, 32–14, White wins.



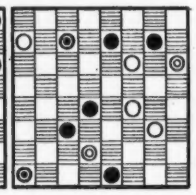
No. 3.—26–22, 31–24, 23–18, 14–23, 5–9, 13–6, 22–17, 21–14, 30–25, 29–22, 15–18, 22–8, 4–2, White wins.



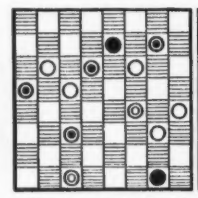
No. 4.—19–15, 11–16, 15–10, 18–23, 25–30, 16–20, 32–27, 23–32, 30–26, 20–27, 26–31, White wins.



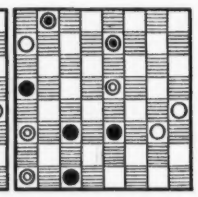
No. 5.—2–7, 15–22, 7–11, 8–15, 23–26, 30–16, 24–27, 31–24, 28–26, 16–11, 21–25, 29–22, 26–17, etc., Black wins.



No. 6.—27–24, 21–23, 4–8, 28–10, 8–12, 7–16, 12–17, 9–5, 2–6, 10–1, 17–10, etc , Black wins.



No. 7.—14–17, 25–18, 9–6, 23–16, 13–9, 20–27, 17–13, 1–10, 3–7, 11–2, 9–6, 2–9, 13–24, White wins.



No. 8.—11–16, 12–19, 3–8, 4–11, 10–15, 19–10, 20–24, 28–19, 26–23, 18–27, 32–5, Black wins.

get the tip-off nine times out of ten and thus give his team an important advantage at the start.

The first duty of a centre is to get the jump on his opponent. Between men of approximately the same height that is an extremely hard thing to do. The present clean rules under which the colleges play insist that each man place one hand behind the middle of his back when the ball is tossed up between two opponents. There is a theory that as the ball is tossed into the air a man who is quick enough can time his jump so that he is able to tap or hit the ball before it reaches the highest point in its upward course. That is true only when the referee or umpire tossing the ball is inexperienced. A competent official will always toss the ball between two men in such a way that the ball is started downward before it can be tapped. Consequently, the best practice for a centre is to time his spring so that he taps the ball at the very moment when it starts to fall.

For actual practice in jumping try this: Attach a cord to the ball and tie it to some support so that the ball is at a fixed height above your head but within fairly easy reach. With your weight firmly on the balls of your feet and your knees slightly bent—no one can acquire a spring by standing flat-footed—try jumping and tapping the ball at that height. Gradually increase the height of the ball above your head until your utmost endeavor will barely permit you to touch it. Practice day after day ten or fifteen times a session, and as the muscles in the calves of your legs become more developed you will reach in time the highest point it is possible for you to attain. There will be a marked difference between the height thus reached and the height you could reach when you first began practice.

After the tip-off a centre must endeavor to get nearer his opponent's basket in case his side gets possession of the ball; if it does not get the ball, he falls back according to some prearranged formation or else immediately seeks to cover his opponent, who without doubt is advancing to a position where he can make an easy shot. If his opponent is being guarded, however, the centre should advance to a position near his own basket where he can cover any other opponent who gets within easy shooting distance. Never make the mistake of trying to cover an opponent who is already guarded. It weakens the defensive strength of your own team and almost always leads to a foul's being called.

In advancing the ball a centre should keep more or less in the middle of the floor, leaving to his forwards the task of running up the sides and cutting in. Practice dribbling as much as possible, for with the forwards drawing the defense to the sides a centre has frequent opportunities to dribble up the middle of the floor and take a clean shot for the basket. Sometimes when the ball is thrown up between the centre and an opponent close by the basket the man with a good spring can tip it in.

*Act Quickly, Think Quickly*

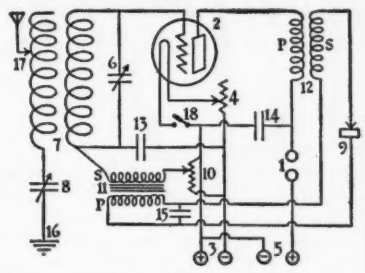
*Look in the Boys' Page for January*

## A SINGLE-TUBE REFLEX CIRCUIT

THE reflex, or "repeating," receiver consists of a crystal-detector circuit combined with a tube-amplifier circuit of one or more tubes. It is a non-regenerative receiver that affords clear reception and high amplification, and that is well adapted for use either with an overhead antenna, or with a small loop antenna, and a loud speaker. The single-tube reflex receiver gives signal strength about equal to a crystal detector plus two stages of amplification. The reflex circuit is extremely selective as well as sensitive, and tuning is very sharp. Your standard tube receiver can easily be converted into the reflex type by removing the grid condenser and grid leak and adding the audio and radio transformers, 11 and 12, the potentiometer, 10, and the fixed condensers, 13, 14 and 15, as outlined in the figure.

You will observe that the set is made up of two circuits connected one to the other inductively by means of the transformers. The tube circuit is of the ordinary amplifier type, and coupled to it inductively is a simple loop circuit that includes the primary coil of transformer 11, the secondary coil of transformer 12, a fixed condenser, 15, and the crystal detector, 9. The tuning coil, 7, may be any loose-coupled coil or vario-coupler; the audio-frequency transformer, 11, with an iron core, will cost $3.50; the radio-frequency transformer, 12, will cost $4; the potentiometer, 10, which is variable and has a maximum resistance of about 400 ohms, will cost $2.50; the fixed condensers, 13, 14, 15, will cost about twenty cents each. The remaining parts of the receiver are similar to those used in all standard receivers and have all been described in previous numbers of The Companion. Standard six-volt tubes are generally used in reflex circuits, but low-voltage tubes that operate on dry cells are also satisfactory.

You can rewire your present cabinet for the reflex circuit. However, we suggest that you first make up an experimental reflex receiver by assembling the various parts on a flat board in order to study the circuit and to find the best condenser capacities for your set. The correct capacities for condensers 13, 14 and 15 sometimes vary with the particular transformers used in the circuit, although the capacities given in the diagram will hold good for most makes of transformers. As the reflex circuit is a balanced circuit, it is important that the condensers should be correct. In testing the set it might be well to use variable condensers, if possible, to arrive at the best capacities to match your transformers. The potentiometer, 10, regulates the "bias" charge on the grid of the tube and enables you to charge the grid negatively or positively by merely moving the sliding contact. The reflex circuit works best with loose




*1—Binding posts for headset or loud speaker.*
*2—Audion tube.*
*3—Binding posts for filament battery, 6 volts.*
*4—Rheostat for filament battery circuit.*
*5—Binding posts for plate battery, 80 to 90 volts.*
*6—Variable tuning condenser, .001 m.f.*
*7—Loose-coupled tuning coil, or vario-coupler.*
*8—Variable tuning condenser, .001 m.f.*
*9—Crystal detector of any type.*
*10—Potentiometer, about 400 ohms resistance, variable.*
*11—Audio-frequency transformer.*
*12—Radio-frequency transformer.*
*13—Fixed condenser, .001 m.f.*
*14—Fixed condenser, .001 m.f.*
*15—Fixed condenser, .003 m.f.*
*16—Ground lead.*
*17—Antenna lead.*
*18—Filament battery switch.*

coupling between the primary and secondary coils of the tuner, or variocoupler, 7.

In order to understand the interesting technical workings of the reflex circuit we must know the meaning of the terms radio-frequency current and audio-frequency current. The radio-frequency current usually alternates, or oscillates, at a high frequency of from 20,000 to 2,000,000 complete alternations a second. Such is the current that oscillates in the antenna when an electric wave passes. The audio-frequency current is of low frequency and is capable of causing the diaphragms of the headsets to vibrate, thus rendering it audible to the ear. Its usual frequency is between 500 and 1000 complete alternations a second. Accordingly, in the ordinary crystal or tube receiver the incoming radio-frequency current is transformed by the crystal or the tube detector into audio-frequency, or pulsating, current that can be heard in the headsets. In the reflex circuit, however, the action is more complicated. Briefly, the reflex receiver works as follows:

The incoming radio-frequency current passes by induction from the primary coil to the secondary coil of the tuner, 7, and charges condenser 6, which discharges into the grid and filament of the tube partly through condenser 13. The alternating charge on the grid causes corresponding alternating current of radio-frequency, but of greater intensity, to flow in the plate circuit through the primary coil of transformer 12 and condenser 14 to the filament. In other words the original radio-frequency current is amplified by the action of the tube. The new amplified radio-frequency current in the plate circuit then passes to the crystal detector circuit through transformer 12, and by the rectifying action of the crystal it is transformed from a current of radio-frequency to a current of audio-frequency. This audio-frequency current now passes back to the grid and filament of the tube through transformer 11; it is amplified by the action of the tube and flows in the plate circuit and headsets as an audible signal. The tube therefore acts as an amplifier of both the radio and the audio-frequency current, and double amplification takes place simultaneously. There are several other actions in the circuit, but the one mentioned explains the fundamental operation.

The question now arises, why do the two kinds of current take the particular paths as described? The reason is that condensers and coils of wire offer resistance to such current, and the resistance differs with current of different frequency. Such current follows the path of least resistance according to its frequency and can be guided and separated by placing in the circuit suitable condensers and inductance coils. More detailed explanation of the behavior of alternating currents of various frequency can be found in text books.

When the reflex receiver is working you may hear an objectionable induction hum if power lines are near-by. In such event run a wire from the antenna lead to the positive (+) terminal of filament battery 3, and the hum will cease. When using a loop antenna discard the tuning coil, 7, entirely and connect one end of the loop to each side of the variable condenser, 6. The loop antenna may be constructed as described in The Companion for October 19, 1922. However, unless you are fairly close to a broadcasting station, you will get better results with an overhead antenna.



THE RUMFORD PRESS

# *Let your answer to this question protect your delicate garments*

TO test a soap by actually *washing* a delicate silk or wool garment is to run a serious risk.

We believe, therefore, that you will gladly welcome this simple, but conclusive, test of a soap's safety, which can be made without endangering anything you own.

### *Here is the test:*

Ask yourself: "Would I be willing to use the soap on my face?"

See how quickly and easily your answer clears up all your doubts! It is at once evident that if a soap is too harsh for your delicate skin, it must be too strong for delicate textiles.

When you apply this test to Ivory Flakes, your mind leaps at once to an inevitable conclusion—of *course* Ivory Flakes must be safe, because it is the flaked form of the same Ivory Soap which has cleansed and protected lovely complexions for more than 44 years.

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To wash fine things with Ivory Flakes is as simple as it is safe. A *tea*spoonful, instantly dissolved in a quart of hot water and diluted until lukewarm, gives an overflowing bowlful of gentle, yet thorough, swift-working, cleansing suds. A few moments of dipping and squeezing, and your blouse or sweater or sheer silk stockings are daintily clean again.

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***Ivory Flakes is for sale in grocery and department stores everywhere—in both 10 cent and 25 cent packages.***

PROCTER & GAMBLE

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*Valenciennes lace and radium silk*

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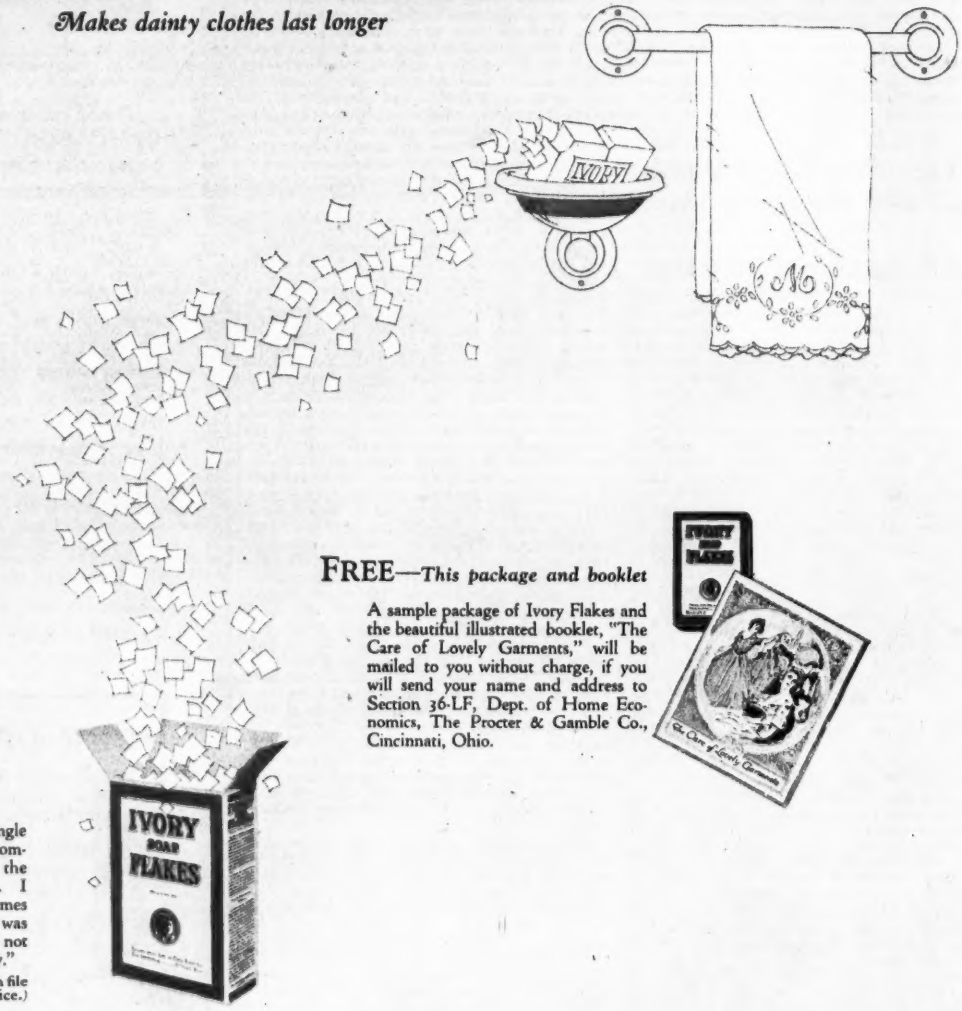
(Garment and owner's letter on file at the Procter & Gamble office.)

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